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Astrology & the Presidency

Government & Gullibility

NRC Examines Psi Claims

The Intellectual Revolt Against Science

Graphology: Write & Wrong

Satan & Rock Music

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Special Report

Astrology and the Presidency

IT WAS extraordinary. Astrology, an ancient but still immensely popular pseudo-science, was for a while on the front page of every newspaper and on every national network newscast. Political columnists and political cartoonists had a heyday. Time *magazine made it a cover story. The revelations of the extent to which President and Mrs. Reagan used advice from astrologers for political scheduling (at the very least) was big news. It was fodder for everything from serious examinations of the political implications of using astrology in the White House and discussions of the scientific invalidity of astrology to endless jokes and laughter. Astrologers defended their craft and reveled in the publicity.*

Our coverage begins with two essay columns, the first by CSICOP Chairman Paul Kurtz. These are followed by excerpts from Donald Regan's book, which brought this controversy to the fore, and comments from political columnists (many refreshingly skeptical), scientists, and the astrologers themselves. We then publish a challenge CSICOP sent to the Reagans' astrologer. And we conclude with a guide to recent scientific critiques of astrology, many published in the SKEPTICAL INQUIRER.

Skeptic's Burnout: Hard Weeks on the Astrology Battle Line

"DO YOU ever get skeptic's burnout?" asked Barry Karr, CSICOP's astute young public-relations director. This question came at the end of a long, hard day during the particularly exhausting three weeks following Donald Regan's revelation of the Reagans' use of astrology at the White House.

The "Astrogate" story hit the CSICOP office like a bombshell and led to an extended barrage of calls from the press and radio and television representatives: "What do you think of this disclosure?" "Is astrology true?" "Can you recommend an expert to appear on our show?"

During those weeks, CSICOP provided guests for several dozen radio and television shows and newspaper interviews. With few exceptions, our spokesmen were the only ones who were both able and willing to comment authoritatively on belief in astrology.

"Yes, we knew the Reagans regularly consulted astrologers," we responded. "No, we don't think there is any scientific evidence to support the claims of astrology. Indeed, all of the many tests conducted over the past decade have produced negative results."

And we also got the old familiar questions: "But what harm does it do?" "Do you really think it is dangerous?" To which we replied: "If daily horoscopes are read for amusement, we can't see much harm. But if scheduling the signing of the INF treaty and other presidential dates are based on astrology, there is definitely something wrong. If astrology and other pseudoscientific beliefs are accepted by the political leadership, there can be serious implications. Certainly a reasonable level of scientific sophistication is necessary to solve the complicated problems facing society today."

CSICOP's goal has been to attempt to balance untested claims with skeptical dissent based on scientific inquiry. We have not asked that newspapers drop their astrology columns. We have simply requested that newspapers and magazines carry a disclaimer along with their horoscope columns. Thus far, only 22 newspapers have been willing to take this step—more than 1,300 have not!

Our modest efforts notwithstanding, belief in astrology continues to grow. In 1976, 29 percent of the population claimed to believe in astrology, but by 1986 this figure had increased to 36 percent. Of course one reason for this is that "astrology sells." It is a profitable business. Horoscopes are sold in much the same way as cornflakes, chewing gum, and beer.

Another reason for the popularity of astrology is that all too many television directors and producers either lack critical judgment about the paranormal or pander to public taste rather than exercising their responsibility to provide the public with the facts.

A recent Oprah Winfrey show illustrates this point. This popular daytime television talk-show presented a special program on astrology and asked Roger Culver, an astronomer at Colorado State University and a member of CSICOP's Astrology Subcommittee, to be a guest on the panel, and he agreed to appear. However, following the usual practice of television shows, Culver, the only skeptic on the show, was pitted against three astrologers, who were supported by an audience packed with believers. Culver, coauthor of the recently released *Astrology: True or*

False?—A Scientific Evaluation (an updated edition of *The Gemini Syndrome*), was placed in an unwinnable situation. Not only was he outnumbered, but when he said that science could find no credible evidence to support the claims of astrology, the vivacious Oprah asked why people should accept what scientists say when so many of them do not believe in God! Playing to the galleries, astrology overwhelmed astronomy.

Two weeks earlier, I gave an extensive 90-minute telephone interview to *People* magazine—which does not carry an astrology column. The reporter told me that his editors were willing to do a "hard-hitting" critique of astrology. I reviewed the major reasons science was skeptical and supplied him with the names of several astronomers and other scientists he could contact. The night the magazine went to press, a member of the magazine's editorial staff called me to say that an entire page was being devoted to scientific objections to astrology, but when the story appeared a week later there was not one word of criticism. It featured interviews with Joan Quigley, Nancy Reagan's astrologer, and other "astrologers to the stars." When I later called to ask what had happened, I was told there had been "no space to run criticisms."

Time and again we find the same thing. Sally Jessy Raphael, who hosts a popular syndicated daytime TV talk-show, devoted a recent program to a discussion of demonic possession, with four believers and *a lone skeptic*—Canadian journalist-magician Henry Gordon—and, again, the audience was almost unanimous in its support of the proponents.

It is small consolation that all of the programs are not like Geraldo Rivera's recent "Geraldo" show, on which five astrologers were uncontested by any skeptical voice at all as they offered glowing testimony to the success of their predictions, or like a recent "Donahue" show that featured a Tarot-card reader, an astrologer, a spiritual counselor, a psychic medium, and a psychic—with not one skeptic. It's an uphill battle today to offer even a semblance of reflective doubt about the claims that feed the public's appetite for the paranormal.

Another graphic illustration of this is the book *The Haunted,* published by St. Martin's Press, written by Robert Curran in collaboration with Jack and Janet Smurl and demonologists Ed and Lorraine Warren. (See the review in this issue.) The book chronicles the events in the Smurls' supposedly haunted home in West Pittston, Pennsylvania. (See *SI,* Winter 1986-87.) The most outrageous claim made by Jack Smurl was that he had been raped at least a dozen times by a demon and other preternatural beings. CSICOP's team of investigators found there were natural causes to explain many of the events that allegedly took place in the house and that it was not necessary to attribute them to occult forces. Nevertheless, the publishers sent the Smurls and the Warrens on a 15-city media tour to sell the book.

Some publishers have apparently abandoned any pretense of objectivity. Regrettably, following the lead of the *National Enquirer,* the media industry is often more interested in high readership and a rosy bottom-line than in the truth of their authors' claims. Bantam Doubleday Dell, publisher of many of Shirley MacLaine's books, is owned by Bertelsmann, the huge German conglomerate that has often abandoned its standards of editorial responsibility in its quest for profits, and all too many other publishers do the same.

Representing Prometheus Books, I recently attended the annual American Booksellers Association convention, in Anaheim, California. I was struck by the fact that, although hundreds of books on paranormal topics were being promoted with considerable fanfare, books critical of such claims were only noticeable by their absence.

Among the plethora of books supporting UFOs, astrology, psychics, channeling, and countless other New Age fads, Prometheus stood virtually alone in providing opposing views. Why have the larger publishers chosen not to publish skeptical critiques? The answer we hear over and over again is that they do not sell; only books that tout the paranormal make a profit. Alas, there is some truth to that pessimistic appraisal, but don't publishers have an obligation to present the truth?

Do we ever get "skeptic's burnout"? Well, we do feel somewhat like Sisyphus pushing a rock up a hill—and as soon as it gets near the top it rolls back down and we have to start all over again. But what if CSICOP did not exist? Imagine a situation in which there was no critical dissent at all. Psychics, astrologers, soothsayers, and gurus would no doubt cheer and make the most of it. Burnout or not, we still have work to do.

I am convinced that paranormal belief systems are the expression of deep-felt needs of the human psyche and that that is why they persist. Nevertheless, it is necessary to provide a critical alternative so that those who are interested in the scientific case can have the facts.

If someone claims wondrous powers, the world will beat a path to his door. If upon examination his claims are proved false, few are interested. Crowds will flock to a carnival when it comes to town. Jugglers and medicine men who hawk spurious products have a field day. Those who seek to sort out and evaluate these claims are drowned out by those rushing to buy the wares of the miracle mongers.

—Paul Kurtz

Paul Kurtz is the founding chairman of the Committee for the Scientific Investigation of Claims of the Paranormal.

The Fortune of Our Country

There's a rumor at the White House
and we don't know if it's true.
Does Nancy read Ron's horoscope
and tell him what to do?
Is it 7 come 11?
Is it I Ching for us all?
What's the fortune of our country?
Let's rub the crystal ball.

When Pluto's in ascension,
send missiles to Iran.
With Venus in the second house,
you pay the Contra man.
You take your foreign policy
and line it up with Mars,
and if it fails, you gotta know
it wasn't in the stars.

—The Fiasco Brothers, Albuquerque, N.M.

The Stars Smile on Soothsayers: The Secret of Reagan's Success

THE DISCLOSURE that President Reagan relies on astrology explains a lot. It had to be something like that. Of course White House spokesmen are now saying that only his scheduling was determined by astrology. Since timing is everything in politics, that is a pretty damning admission. The court astrologer claims that it was she who chose George Bush to be the vice-presidential nominee. So in addition to voodoo economics, we have voodoo politics.

Perhaps the people whose reputations will suffer the most as a result of this revelation are the political pundits. They use reams of paper to ascribe all sorts of sophisticated reasons for Reagan's convoluted policies, when all we really need to know is what the astrological signs are. Here, for example, is how Reagan's soothsayer explained last year's meeting between Reagan and Gorbachev: ". . . Astrology definitely was used in the planning of the summit between the President and Soviet leader Gorbachev last December, but things didn't go smoothly between the two first ladies because Raisa's birthdate was unknown."

Now, *that* was a major failure in Intelligence.

How does it happen that in a supposedly scientific age astrology flourishes? Well, after all, horoscopes do appear in most American newspapers and a large number of magazines, and millions turn to them for daily guidance. Of course, like the Reagans, many people hide the habit or, when discovered, make light of their dependence and claim they check their horoscopes just because they are "curious." When curiosity is habitual we are entitled to suspect at least mild addiction. It was Maimonides who said that astrology was not a superstition but a disease.

Enlightened readers may object that *no one* takes these things seriously. The President of the United States isn't exactly "no one." Ostensibly, no one takes advertising seriously either—in the sense of believing its claims. Still, billions are spent on advertising by hard-headed businessmen who instinctively understand that statements do not have to be "believed" in order to be accepted and, therefore, have an effect. One can believe weakly as well as fervently on bases as disparate as logic, anecdote, reputation, or simple familiarity—which is more likely to breed assent than contempt. The mere fact that astrological charts appear so widely and so frequently may be sufficient "proof" for the multitudes, who tend to accept *whatever* exists.

If you read newspaper horoscopes for any period of time you of course find that they say the same thing again and again. What is said of a Taurus today is repeated of an Aquarius tomorrow. The advice is bite-sized, reminiscent of the petite paper platitudes encapsulated in Chinese fortune cookies. The pronouncements constitute the kind of cautionary worldly wisdom that Mom delivered just prior to your leaving for grade school in the morning: "Be careful and don't forget to wear your galoshes." If there is a larger theme, it is to adjust, accommodate, swim with the tide, and not make waves. The reader is ceaselessly enjoined to eschew controversy, avoid trouble, and refrain from answering back. Again and again he or she is told to consult a "friend," a "mate," an "advisor," or a "powerful person." The enormous importance of luck is stressed—luck, the greatest source of hope for the hapless, the incompetent, and the lost. Success is almost always "unexpected" or comes from an "unexpected" source that the subject is presumed to have courted consciously or

unconsciously.

Astrologers sense the deep insecurity of people who would trust them rather than themselves. That the astrologically inclined are likely to be dependent is an old observation. They seek certainty in the stars—powerful, mysterious, remote, and seemingly eternal. The paradoxical notion that these distant entities are somehow concerned with the destiny of each individual restores order to what might otherwise seem to be an utterly capricious existence. At the same time it lifts the weight of responsibility from the shoulders of the frail.

A recurring device of soothsayers is what I call A.M./P.M. forecasting:

> Aries: The day begins on a sluggish note. . . . A conversation with a friend is a pick-me-up.

If astrologers too frequently stated that the day would be a total loss or a total gain, their devotees, experiencing instead the kind of day most of us have most of the time (i.e., a mixed bag), might begin to doubt their predictive powers. To minimize the risk, they hedge their bets with a little of this and a little of that: the morning bad/good; the evening good/bad.

Since astrologers have to sound as though they know each and every one of their readers personally, recourse to contrarieties is of the essence. This is the staple of all *mass* characterological analysis: "You born today are both idealistic and practical, but may have difficulty reconciling these qualities." I shouldn't doubt it.

Every individual is a mass of contradictions—which is why what the "real person" is turns out to be largely situational: a function of time, place, company, and circumstance. Tea-leaf readers, palmists, and astrologers have always understood this and used it to their advantage. Naturally, every individual *leans* a bit more in one direction than in another; e.g., extrovert/introvert—but what is most important for those who seek fame and fortune as "experts" at reading character is the fact that everyone is a little of both—so the expert can never be entirely wrong no matter what he says.

In newspaper horoscopes *all* discouragements are temporary and trivial. Your horoscope never says that you will experience horror, or death, or disease. These are simply not part of its reality. Nor is surgery, bankruptcy, unemployment, racism, suicide, or famine. Indeed, climactic events, except for miraculous positive interventions, do not exist in the mass-media astrological lexicon. The tone is "tepid upbeat." Such realism as *is* displayed is conveyed through reiteration of the trivial. The negative side consists of flyspecks—the habitual loss of keys and the "tragic" failure to send a thank-you note or return a call. The column may scold or nag you about your shortcomings (although never about society's lacks), but there is, in the last analysis, only one direction to go—up.

Although the astrologer usually sounds like Mom reminding you not to forget your galoshes, sometimes there is a change to the stern father figure. Then the tone, too, changes to the peremptory. Instead of advice, commands are issued:

> Sagittarius: The sweet tooth tempts you. Begin a program of diet and exercise.
> Taurus: Friendship and business don't mix favorably.
> Cancer: Be sure to follow through on promises made to close ties.

It is not just that the astrologer is a substitute parent. It is that parents are our first authority figures. Perhaps the fragmentation of family life—dispersion, divorce,

the one-parent (and that parent away at work) family—means a loss of authority, except when the media—including the personal-advice columns contained therein—are substituted. Astrologers *tell* people what to do.

Their advice is not only straightforward, simple, and serious, it is traditional and conventional as well. The very triteness of the injunctions strengthens the impact of advice, which resonates with memories of the kind of stuff Mom and Pop dealt out—only it's easier to take because, unlike our parents, astrologers are as remote from us as the stars, whose secrets they are supposedly transcribing.

Astrology has always fed on insecurity. Reagan will survive this disclosure, as he has so many other compromising disclosures, because millions of his countrymen have just as primitive a notion as he does of how and why things happen—and they feel just as insecure.

The *real* secret of R.R.'s political success is that he is just one of the folks.

—*Murray L. Bob*

Murray L. Bob is director of the Chautauqua-Cattaraugus Library System, Jamestown, New York.

CSICOP Challenges Mrs. Reagan's Astrologer to a Scientific Test

THE FOLLOWING letter was sent to Joan Quigley, San Francisco astrologer, by Mark Plummer, executive director of the Committee for the Scientific Investigation of Claims of the Paranormal, on May 19, 1988:

Dear Ms. Quigley,

We were interested in your claim reported in an Associated Press article on May 9, 1988, that you were "a serious scientific astrologer."

As the world's leading scientific organization investigating astrology, we would like your cooperation to conduct a scientifically controlled double-blind test of your claims.

We would appreciate it if you could set out in your reply your skills and specialized abilities so that we may draw up a proper protocol to test your claims.

We look forward to hearing from you so that arrangements for the protocol for the test may be drawn up as soon as possible.

We feel that such a test is in the public interest. As a scientist we feel sure you will cooperate to prove your claims in a scientific manner.

Yours sincerely,

Mark Plummer
Executive Director

As we go to press, no response to this letter has been received.—ED.

Donald Regan's In-House View

HERE ARE excerpts concerning astrology in the White House from Donald Regan's book, For the Record.

Virtually every major move and decision the Reagans made during my time as White House chief of staff was cleared in advance with a woman in San Francisco who drew up horoscopes to make certain that the planets were in a favorable alignment for the enterprise.

Nancy Reagan seemed to have absolute faith in the clairvoyant powers of this woman, who had predicted that "something" bad was going to happen to the president shortly before he was wounded in an assassination attempt in 1981.

* * *

Although I had never met this seer—Mrs. Reagan passed along her prognostications to me after conferring with her on the telephone—she had become such a factor in my work, and in the highest affairs of the nation, that at one point I kept a color-coded calendar on my desk (numerals highlighted in green ink for "good" days, red for "bad" days, yellow for "iffy" days) as an aid to remembering when it was propitious to move the president of the United States from one place to another, or schedule him to speak in public, or commence negotiations with a foreign power.

* * *

Before I came to the White House, Mike Deaver had been the man who integrated the horoscopes of Mrs. Reagan's Friend into the presidential schedule. . . . It is a measure of his discretion and loyalty that few in the White House knew that Mrs. Reagan was even part of the problem [waiting for schedules]—much less that an astrologer in San Francisco was approving the details of the presidential schedule. Deaver told me that Mrs. Reagan's dependence on the occult went back at least as far as her husband's governorship, when she had relied on the advice of the famous Jeane Dixon. Subsequently, she had lost confidence in Dixon's powers. But the First Lady seemed to have absolute faith in the clairvoyant talents of the woman in San Francisco. Apparently, Deaver had ceased to think there was anything remarkable about this long-established floating séance. . . . To him it was simply one of the little problems in the life of a servant of the great. "At least," he said, "this astrologer is not as kooky as the last one."

* * *

There was no choice but to humor the First Lady in this matter. But the president's schedule is the single most potent tool in the White House, because it determines what the most powerful man in the world is going to do and when he is going to do it. By humoring Mrs. Reagan we gave her this tool—or more accurate, gave it to an unknown woman in San Francisco who believed that the Zodiac controls events and human behavior and that she could read the secrets of the future in the movement of the planets.

* * *

A full month after the president's release from the hospital, his schedule was still a dead letter because Mrs. Reagan's "Friend" had not provided a list of auspicious days. The whole month appeared inauspicious for the president. •

The Commentators Comment . . .

FOLLOWING are excerpts from selected political commentators on the use of astrology in governmental decision-making:

David Brinkley: The daily astrological charts are precisely where, in my judgment, they belong, and that is on the comic page.

George Will: I don't think astrology belongs even on the comic pages. The comics are making no truth claim.

Brinkley: Where would you put it?

Will: I wouldn't put it in the newspaper. I think it's transparent rubbish. It's a reflection of an idea that we expelled from Western thought in the sixteenth century, that we are in the center of a caring universe. We are not the center of the universe, and it doesn't care. The stars' alignment at the time of our birth—this is absolute rubbish. It is not funny to have it intruded among people who have nuclear weapons.

Sam Donaldson: This isn't something new. Governor Ronald Reagan was sworn in just after midnight in his first term in Sacramento because the stars said it was a propitious time.

Will: They [horoscopes] are utter crashing banalities. They could apply to anyone and anything.

Brinkley: When is the exact moment [of birth]? I don't think the nurse is standing there with a stopwatch and a notepad.

Donaldson: If we're making decisions based on the stars—that's a cockamamie thing. People want to know it.

—"This Week" with David Brinkley, ABC Television, Sunday, May 8, 1988, excerpts from discussion on Astrology and Reagan

The reported resort to astrology in the White House has occasioned much merriment. It is not funny. Astrological gibberish, which means astrology generally, has no place in a newspaper, let alone government. Unlike comics, which are part of a newspaper's harmless pleasure and make no truth claims, astrology is a fraud. The idea that it gets a hearing in government is dismaying.

—George Will, Washington Post Writers Group

Astrology is the sheerest hokum. This pseudoscience has been around since the days of the Chaldeans and Babylonians. It is as phony as numerology, phrenology, palmistry, alchemy, the reading of tea leaves, and the practice of divination by the entrails of a goat. No serious person will buy the notion that our lives are influenced individually by the movement of distant planets. This is the sawdust blarney of the carnival midway.

—James J. Kilpatrick, Universal Press Syndicate

A serious public debate about the validity of astrology? A serious believer in the White House? Two of them? Give me a break. What stifled my laughter is that the

image fits. Reagan has always exhibited a fey indifference toward science. Facts, like numbers, roll off his back. And we've all come to accept it. This time it was stargazing that became a serious issue. . . . Not that long ago, it was Reagan's support of Creationism. . . . Creationists actually got equal time with evolutionists. The public was supposed to be open-minded to the claims of paleontologists and fundamentalists, as if the two were scientific colleagues. . . . It has been clear for a long time that this president is averse to science. . . . In general, these attitudes fall onto friendly American turf. . . . But at the outer edges, this skepticism about science easily turns into a kind of naive acceptance of nonscience, or even nonsense. The same people who doubt experts can also believe any quackery, from the benefits of laetrile to eye of newt to the movement of planets. We lose the capacity to make rational—scientific—judgments. It's all the same.

—Ellen Goodman, The Boston Globe Newspaper Company-Washington Post Writers Group

The spectacle of astrology in the White House—the governing center of the world's greatest scientific and military power—is so appalling that it defies understanding and provides grounds for great fright. The easiest response is to laugh it off, and to indulge in wisecracks about Civil Service ratings for horoscope makers and palm readers and whether Reagan asked Mikhail Gorbachev for his sign. A contagious good cheer is the hallmark of this presidency, even where the most dismal matters are concerned. But this time, it isn't funny. It's plain scary.

—Daniel S. Greenberg, Editor, *Science and Government Report,* writing in *Newsday,* May 5, 1988

Ronald Reagan, according to his once-trusted aide Michael Deaver, is a deep believer in the paranormal who will read "whatever he gets his hands on" dealing with the occult. . . . Now that Donald T. Regan has decided to take revenge on the Reagans by exposing their reliance on astrology for scheduling decisions, the [largely unnoticed] Deaver disclosures assume new meaning. Taken together with the Regan revelations, they show a president for whom superstition is a significant aspect of his belief system.

—Robert C. Maynard, Universal Press Syndicate

Certain things about the last seven years become clearer when reviewed through the horoscope. For example, astrologer Joyce Jillson, who says she was a White House consultant, tells us . . . that presidential press conferences were timed to coincide with the full moon. This explains the mad misstatements of fact that so often occurred during those rare sessions.

—Mary McGrory, Universal Press Syndicate

. . . The Scientists Comment

It's 100 percent hokum, Ted. As a matter of fact, the first edition of the *Encyclopaedia Britannica,* written in 1771—*1771!*—said that this belief system [astrology] is a subject long ago ridiculed and reviled. We're dealing with beliefs that go back to the ancient Babylonians. There's nothing there. . . . It sounds a lot like science, it sounds like astronomy. It's got technical terms. It's got jargon. It confuses the public. . . . The astrologer is quite glib, confuses the public, uses terms which come from science, come from metaphysics, come from a host of fields, but they really mean nothing. The fact is that astrological beliefs go back at least 2,500 years. Now that should be a sufficiently long time for astrologers to prove their case. They have not proved their case. . . . It's just simply gibberish. The fact is, there's no theory for it, there are no observational data for it. It's been tested and tested over the centuries. Nobody's ever found any validity to it at all. It is not even close to a science. A science has to be repeatable, it has to have a logical foundation, and it has to be potentially vulnerable—you test it. And in that astrology is really quite something else.

—Astronomer Richard Berendzen, President, American University, on ABC News "Nightline," May 3, 1988

Even if we put all these nagging thoughts [four embarrassing questions about astrology] aside for a moment, one overriding question remains to be asked. Why would the positions of celestial objects at the moment of birth have an effect on our characters, lives, or destinies? What force or influence, what sort of energy would travel from the planets and stars to all human beings and affect our development or fate? No amount of scientific-sounding jargon or computerized calculations by astrologers can disguise this central problem with astrology—we can find no evidence of a mechanism by which celestial objects can influence us in so specific and personal a way. . . . Some astrologers argue that there may be a still unknown force that represents the astrological influence. . . . If so, astrological predictions—like those of any scientific field—should be easily tested. . . . Astrologers always claim to be just a little too busy to carry out such careful tests of their efficacy, so in the last two decades scientists and statisticians have generously done such testing for them. There have been dozens of well-designed tests all around the world, and astrology has failed every one of them. . . . I propose that we let those beckoning lights in the sky awaken our interest in the real (and fascinating) universe beyond our planet, and not let them keep us tied to an ancient fantasy left over from a time when we huddled by the firelight, afraid of the night.

—Andrew Fraknoi, Executive Officer, Astronomical Society of the Pacific, "Why Astrology Believers Should Feel Embarrassed," *San Jose Mercury News,* May 8, 1988

With the news that Nancy Reagan has referred to an astrologer when planning her husband's schedule, and reports of Californians evacuating Los Angeles on the strength of a prediction from a sixteenth-century physician and astrologer Michel de Notredame, the image of the U.S. as a scientific and technological nation has taken a bit of a battering lately. Sadly, such happenings cannot be dismissed as passing fancies. They are manifestations of a well-established "anti-science" tendency in the

U.S. which, ultimately, could threaten the country's position as a technological power. . . . The manifest widespread desire to reject rationality and substitute a series of quasirandom beliefs in order to understand the universe does not augur well for a nation deeply concerned about its ability to compete with its industrial equals. To the degree that it reflects the thinking of a significant section of the public, this point of view encourages ignorance of and, indeed, contempt for science and for rational methods of approaching truth. . . . It is becoming clear that if the U.S. does not pick itself up soon and devote some effort to educating the young effectively, its hope of maintaining a semblance of leadership in the world may rest, paradoxically, with a new wave of technically interested and trained immigrants who do not suffer from the anti-science disease rampant in an apparently decaying society.

—Physicist Tony Feinberg, in *New Scientist,* May 19, 1988

It's the thought that we are very small and the universe is very big and we don't have much control of mysterious forces from beyond. I think people want a larger degree of certainty than they can find through conventional channels and if someone will give them the answers, they will take them.

—John Mosley, Griffith Observatory, quoted in the *Los Angeles Times,* May 23, 1988

In every carefully controlled experiment or statistical analysis [for astrology] of which I am aware, either the results are negative or nonreplicable.

—Astronomer Roger Culver, Colorado State University, quoted in the *Los Angeles Times*

It is a very hard fight. People want to believe in it. And there is nothing you can say to dissuade them.

—Physicist Shawn Carlson, University of California, quoted in the *Los Angeles Times*

. . . The Astrologers Comment

I advise them [the Reagans] when to be careful. I don't make decisions for them. . . . An astrologer just picks the best possible time to do something that someone else has already planned to do. It's like being in the ocean: you should go with the waves, not against them. . . . I know his [President Reagan's] horoscope upside down, but I don't know him. I deal with Nancy.

—Joan Quigley, San Francisco astrologer, quoted in "The First Lady's Astrologer," *Time,* May 16, 1988

I can't deal with that question [of why the planets should care about press conferences and the Contras].

—Barbara Somerfield, director, National Astrological Society, *Wall Street Journal,* May 12, 1988

Astrology is used by people in Washington, campaign managers, politicians, to see if a candidate has the astrological mettle to make it to the top.

—Astrologer Joyce Jillson, "Nightline," May 3, 1988

Astrology is a major influence in your life. It's not your only one. We do have environment, and we do have heredity. It's not the only influence. However, it's a major influence, and it's something that astrologers don't predict futures, they help create futures.

—Henry Weingarten, New York Astrology Center, "Nightline," May 3, 1988

Astrology does say that you look at the pattern of a moment and you read the instructions. . . . The idea is that if you can study the patterns—and what I find ironic about scientists being so aggressively antagonistic, often, to astrology, is that it is a language that does say we are all part of one pattern. Astrology is the meaning of the patterns. . . . The tremendous hunger in the world . . . is a tremendous yearning for meaning. . . . Astrology is the language that poses these questions, and that also gives each person a unique, individual . . . set of instructions to fulfill. . . . It is not dealing with a fixed future model. It is not fortune-telling. It is how do you grow as a human being.

—Caroline W. Casey, astrologer, "Nightline," May 3, 1988

People have the view that Ronald Reagan was a little out to lunch to begin with and that this is another manifestation of his frivolity. . . . Reagan discredits astrology because of the low level of his intellect and awareness. If it had been Henry Kissinger, it would have been another story.

—Ronald G. Rubin, New York City astrologer, quoted in the *New York Times,* May 19, 1988

Guide to Scientific Critiques of Astrology

In the SKEPTICAL INQUIRER (in chronological order, from most recent):

Dean, Geoffrey. "Does Astrology Need to Be True? Part 2: The Answer is No." Spring 1987.

Dean, Geoffrey. "Does Astrology Need to Be True? Part 1: A Look at the Real Thing." Winter 1986-87.

"Double-Blind Test of Astrology Avoids Bias, Still Refutes Astrological Hypothesis." Spring 1986. [Report on Carlson study.]

Dean, Geoffrey. "The Guardian Astrology Study: A Critique and Reanalysis." Summer 1985.

Rotton, James. "Astrological Forecasts and the Commodity Market: Random Walks as a Source of Illusory Correlation." Summer 1985.

Kurtz, Paul, and Andrew Fraknoi. "Scientific Tests of Astrology Do Not Support Its Claims." Spring 1985.

Kelly, I. W., and R. W. Krutzen. "Humanistic Astrology: A Critique." Fall 1983.

Gauquelin, Michel. "Zodiac and Personality: An Empirical Study." Spring 1982.

Kelly, I. W., and Don H. Saklofske. "Alternative Explanations in Science: The Extroversion-Introversion Astrological Effect." Summer 1981.

Bastedo, Ralph. "An Empirical Test of Popular Astrology." Fall 1978.

McGervey, John D. "A Statistical Test of Sun-Sign Astrology." Spring/Summer 1977.

Others:

Culver, R. B., and P. A. Ianna. *Astrology: True or False?—A Scientific Evaluation* (an updated edition of *The Gemini Syndrome*). Prometheus Books, Buffalo, N.Y., 1988.

Carlson, Shawn. "A Double-Blind Test of Astrology." *Nature,* 318:419-425, December 5, 1985.

Abell, George. "Astrology." In *Science and the Paranormal,* ed. by G. O. Abell and B. Singer. Scribner's, New York, 1981.

Jerome, Lawrence E. *Astrology Disproved.* Prometheus Books, Buffalo, N.Y., 1977.

Bok, Bart, and Lawrence E. Jerome. *Objections to Astrology.* Prometheus Books, Buffalo, N.Y., 1975. (Includes text of statement "Objections to Astrology" signed by 192 leading scientists, including 19 Nobel Prize winners.) •

We *Are* Connected to the Cosmos

We seek a connection with the Cosmos. We want to count in the grand scale of things. And it turns out we *are* connected—not in the personal, small-scale unimaginative fashion that the astrologers pretend, but in the deepest ways, involving the origin of matter, the habitability of the Earth, the evolution and destiny of the human species.

—Carl Sagan, *Cosmos* (Random House, New York, 1980).
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The New Age: A Scientific Evaluation

FRIDAY, NOVEMBER 4 — International Ballroom

8:00- 9:00 A.M.: Registration

9:00- 9:30 A.M.: **Welcoming Remarks**

Paul Kurtz, CSICOP Chairman; Norman Bradburn, Provost, University of Chicago; Donald Langenberg, Chancellor, University of Illinois at Chicago

9:30-12 NOON: **The New Age: An Overview**

Moderator: Paul Kurtz, CSICOP Chairman, Professor of Philosophy, SUNY, Buffalo

Maureen O'Hara, Professor of Women's Studies, San Diego State Univ.

J. Gordon Melton, Director, Inst. for Study of Religion, U.C.-Santa Barbara

Jay Rosen, Assistant Professor of Journalism, NYU

Robert Basil, editor of *Not Necessarily the New Age*

12:00-2:00 P.M.: LUNCH BREAK

2:00-5:00 P.M.: Two concurrent sessions (choose one)

Session 1: **Channeling**

James Alcock, Professor of Psychology, York Univ., Toronto

Graham Reed, Professor of Psychology, Glendon College, Toronto

Sarah Thomason, Professor of Linguistics, Univ. of Pittsburgh

Session 2: **Crystal Healing**

George Lawrence, Senior Research Associate, Univ. of Colorado

New Age Experiences

Ted Schultz, journalist, editor of *Fringes of Reason*

The New Age and Business

Béla Scheiber, Chairman, Rocky Mountain Skeptics

The Shirley MacLaine Phenomenon

Henry Gordon, magician, author, broadcaster, Toronto

5:00- 8:00 P.M.: DINNER BREAK

8:00-10:30 P.M.: **Keynote Address** — Rosemont Ballroom

Douglas Hofstadter, Professor of Psychology, Univ. of Michigan

"Musings on the Elusive Nature of Common Sense and Evidence"

(continued on next page)

SATURDAY, NOVEMBER 5 — Rosemont and United Rooms

8:00- 9:00 A.M.: Registration

9:00-12 NOON: Three concurrent sessions (choose one)

Session 1: **Cryptozoology**

Moderator: Lee Nisbet, Associate Professor of Philosophy, Medaille College
J. Richard Greenwell, Secretary, Int'l Society for Cryptozoology
Frank Poirier, Professor of Anthropology, Ohio State University, Columbus
Roy P. Mackal, University of Chicago
Charles Cazeau, geologist, Tempe, Ariz.

Session 2: **Graphology**

Moderator: Barry Beyerstein, Professor of Psychology, Simon Fraser Univ., Burnaby, British Columbia, Canada
Rose Matousek, President, Amer. Assn. of Handwriting Analysts
Richard J. Klimoski, Professor of Psychology, Ohio State University
Edward Karnes, Professor of Psychology, Metropolitan State College, Denver, Colo.
Felix Klein, Vice President, Council of Graphological Societies

Session 3: **Psychics in the Legal System**

Moderator: Mark Plummer, lawyer, CSICOP Executive Director
Robert Hicks, Analyst, Dept. of Criminal Justice Services, Commonwealth of Virginia
James E. Starrs, Professor of Law and Forensic Sciences, George Washington Univ., Washington, D.C.
Michael Botts, Attorney, Kansas City, Mo.

12:00-2:00 P.M.: **Fund-Raising Luncheon** (optional)—International Ballroom

Presentation by James Randi
Speakers: Philip J. Klass and Mark Plummer

2:00-5:00 P.M.: Two concurrent sessions (choose one)

Session 1: **Media Responsibility and the Paranormal**

Moderator: Milton Rosenberg, Professor of Psychology, University of Chicago
John Baker, Editor-in-Chief, *Publishers Weekly*
George Gerbner, Professor of Communications, Annenberg School of Communications, Univ. of Penn.
Richard Lobo, Vice President, NBC, General Manager, WMAQ-TV, Chicago

Session 2: **UFO-Abductions** (2:00-3:30 P.M.)

Philip J. Klass, aerospace editor, Washington, D.C.
Robert A. Baker, Professor of Psychology, Univ. of Kentucky, Lexington

CSICOP Goes to China (3:30-5:00 P.M.)

Paul Kurtz, CSICOP Chairman
Kendrick Frazier, Editor, SKEPTICAL INQUIRER
Barry Karr, CSICOP Public Relations Director

6:00- 7:00 P.M.: RECEPTION (Cash Bar) Mexicana-Olympic-Swissair Rooms

7:00-10:30 P.M.: **Awards Banquet** (optional) — Rosemont Ballroom

Awards Presentation: Paul Kurtz, CSICOP Chairman

Entertainment: "Skeptical Magicians from Around the World"

Master of Ceremonies: "The Amazing" Randi (Canada)
B. Premanand (India)
Ben Harris, (Australia)
Henry Gordon (Canada)
Robert Steiner (United States)

SUNDAY, NOVEMBER 6 — The Forum Room

9:00-12 NOON: **Enhancing the Skeptics Message**

Ray Hyman, Professor of Psychology, University of Oregon
Jeff Mayhew, computer consultant, Aloha, Oregon
Paul MacCready, President, AeroVironment, Inc., Los Angeles, Calif.
Jerry Andrus, magician, Oregon

REGISTRATION: Please use the registration form below. Pre-registration is advised. The fee is $85.00 (meals and accommodations not included). Student fee is $45.00. The Keynote address is $7.00 for nonregistrants.

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☐ $17.50 Friday Luncheon for _____ person(s) $ _____

☐ $7.00 Keynote Address for _____ (This fee is for nonregistrants only.) $ _____

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For further information contact Mary Rose Hays (716-834-3222), CSICOP, Box 229, Buffalo, N.Y. 14215. Media representatives should contact Barry Karr (716-834-3222).

News and Comment

Nostradamus's 'California Quake': A Lesson from Orson Welles

CAN A joke be played from beyond the grave? It would seem so, but only if you are Orson Welles. Fifty years ago Welles broadcast his famous radio dramatization of H. G. Wells's science-fiction classic *The War of the Worlds.* This broadcast shocked the nation and created a frenzy among credulous listeners. Shortly after that event, Dorothy Thompson, a columnist for the *New York Herald Tribune,* wrote:

> All unwittingly Mr. Orson Welles and the "Mercury Theater of the Air" have made one of the most fascinating and important demonstrations of all time. They have proved that a few effective voices, accompanied by sound effects, can so convince masses of people of a totally unreasonable, completely fantastic proposition as to create a nation-wide panic.
>
> They have demonstrated more potently than any argument, demonstrated beyond question of a doubt, the appalling dangers and enormous effectiveness of popular and theatrical demagoguery.
>
> They have cast a brilliant and cruel light upon the failure of popular education.
>
> They have shown up the incredible stupidity, lack of nerve, and ignorance of thousands.
>
> They have proved how easy it is to start a mass delusion.
>
> They have uncovered the primeval fears lying under the thinnest surface of the so-called civilized man.

Although these words were written 50 years ago, they couldn't be more appropriate today. For Orson Welles has done it again. In 1981, Welles narrated a credulous film account of the legendary sixteenth-century astrologer Nostradamus entitled "Nostradamus: The Man Who Saw Tomorrow." This pseudo-documentary contained a prediction that Los Angeles would suffer a major earthquake in May 1988, based on Nostradamus's claim that he foresaw a particularly malevolent alignment of planets at this time. This prediction was accompanied by graphic stock footage of people fleeing in panic, buildings collapsing, homes burning, and volcanoes erupting.

Further credibility was given to this prediction by the film's claim that Nostradamus had successfully predicted the rise of Napoleon and Hitler, World War II, and the assassination of President Kennedy. Indeed, the film opened with the story and dramatization of Nostradamus's prediction of the day, month, and year that two grave robbers would loot his grave and drink wine from his skull and be cursed to die on the spot. (The Summer 1982 *SI* carried three articles critiquing Nostradamus's "prophecies.")

This obscure and obviously ridiculous film was enough to panic thousands of Los Angeles residents. According to a report in the *New York Times,* Warner Home Video, the distributor of the video-

tape of this film, received more than 2,000 orders from California during the last week of March.

Newspaper articles and television and radio interviews, some credulous and some rational, abounded, making Nostradamus's "prediction" the talk of the town. Much of the anxiety in Los Angeles was the result of the very popular evening KABC-TV show "Eye on L.A.," which broadcast an erroneous and irresponsible report that a planetary alignment was going to cause a major earthquake in Southern California.

Both the Griffith Observatory and the California Institute of Technology (well-known for its seismology laboratory) received thousands of calls and letters from frightened citizens who were already aware that the government and scientists had been warning for some time that the "big one" was due. Many people actually sold their homes and left California, or at least took their vacations during the month of May. The panic spread across the country, no doubt influencing travel to California by more thousands.

Although the exact date in May of the predicted quake was not provided in the movie, somehow May 10 surfaced and spread. When this date passed without so much as a small tremble, the date was pushed to May 28.

Because of the large number of calls from frightened citizens coming into the Griffith Observatory, John Mosley, program supervisor for the Observatory and a member of the Southern California Skeptics, extensively researched the prophecies of Nostradamus and the so-called planetary alignment that was to give rise to the earthquake. His research showed that there would be no such alignment or conjunction during the month of May. In addition, Nostradamus actually predicted only a hailstorm (that didn't happen either!) and of course never mentioned the Los Angeles area, much less the year. The Los Angeles earthquake

prediction originated with Orson Welles.

Mosley prepared an extensive news release on Nostradamus's earthquake prediction as well as some of his other predictions and sent it out on Griffith Observatory stationery, and the Southern California Skeptics issued a release on the Nostradamus/Orson Welles scare. It was gratifying to note that newspapers and radio and television news stories subsequently presented a rational view of the so-called prediction.

—Al Seckel

Al Seckel is executive director of the Southern California Skeptics.

Alternative Practitioners Create Own Big Prize

SINCE MEDICAL researchers have the Nobel Prize in Physiology or Medicine, "alternative" medical practitioners wanted a prestigious award of their own. And now it seems they may have it.

It was announced in May that the world's practitioners of natural healing will challenge modern Western medicine by having their own prize to rival the Nobel Prize. The award will provide the winner about $140,000 and is to be

known as the Albert Schweitzer Prize for Complementary Medicines.

Professor Anton Jayasuriya, Sri Lanka's leading practitioner of acupuncture, homeopathy, and other forms of alternative medicine, announced the prize in Colombo. Jayasuriya, chairman of the World Congress of Natural Medicines held in Spain this spring, issued a statement saying the congress had agreed to establish the award in a resolution that described the Nobel Prize for medicine as "narrow in its scope of recognition of medicines."

He said the award will be given in Stockholm the day before the Nobel Prize. The prize money will come mainly from private contributions from the world's one million practitioners of alternative medicine, according to Jayasuriya. An anonymous Australian has agreed to make up any shortfall.

—*K.F.*

Feinstein's Pseudoscience: Appalling Lack of Understanding

IN OUR Summer 1988 issue (pp. 340-343) we published one scientist's response to claims by Alan Shawn Feinstein Associates about the feature on Mars that somewhat resembles a human face. The firm's national newsletter touted this old story as possibly "the greatest discovery of the century" and as one with "unbelievable implications." Conway W. Snyder, who was Viking Orbiter Scientist for the mission that took the photo in 1976, responded with a 15-point critique.

Alan Shawn Feinstein Associates has continued its onslaught of sensational claims. A more recent newsletter reproduces one of the key MJ-12 "crashed UFO" documents, which Philip J. Klass analyzed and concluded were a hoax (*SI*, Winter and Spring 1988).

This mailing prompted another scientist, Richard Crowe, a University of Hawaii astronomer, to write to Feinstein. Crowe provided critical material on both sets of claims.

Crowe outlined much of the evidence supporting the position that the MJ-12 papers are a hoax. He then concluded:

> I do not think that the American public need worry about the implications of the MJ-12 documents, because it is quite clear that they are fraudulent. I trust that you will convey this information to your readers. If you do not, then I can only judge your claims to be sensationalist. A scientific approach demands that *both* sides of a question be examined critically.
>
> As a science educator, I am often appalled at the general lack of understanding of scientific principles and the scientific method among members of the lay public. Effective science education must show people how to apply the scientific method to the evaluation of exotic claims. There are very strong reasons why most scientists do not accept an extraterrestrial origin for UFOs and why they regard astrology as superstition, etc., but often these skeptical viewpoints are not printed in magazines or newspapers (although they are available in scientific journals). Hence, the public is not always aware of the arguments against pseudoscientific ideas.
>
> The kind of material which you are distributing does not help to foster healthy scientific attitudes in your readers. Thus I would urge you to present the skeptical point of view, so that your readers will be better informed on these topics. It is my job to teach people how much more exciting *real* science is compared to *pseudo*-science.
>
> Yours sincerely,
>
> Richard Crowe
> Assistant Professor
> of Astronomy
> University of Hawaii
> Hilo, Hawaii

Feinstein's reply consisted of a two-sentence acknowledgment referring Crowe to Feinstein's July 1988 "Insider's Report." This sheet did note that the SKEPTICAL INQUIRER said the MJ-12 documents are a hoax. But it then claimed a "world renowned professor" at Drew University had declared the signatures on the documents to be authentic. (This, if true, is irrelevant; the issue is the authenticity not of the signatures but of the documents; a photocopy of a real signature can be placed onto a false document. The "document" can then be photocopied again.) Feinstein also referred to claims about the reality of alien contacts, giving as his authority a report in *Weekly World News.* This is a sensationalist supermarket tabloid. Feinstein makes further claims about the "Face on Mars" and raises the possibility of traveling faster than light. Ironically, the same sheet offers as a free gift a booklet on quackery.

—*K.F.*

Dozier Case: Psychics Led Commandos to Innocent Family

A BOOK about covert military operations during the Reagan presidency contains a disclosure about a Pentagon attempt to use psychics to find Brig. Gen. James Lee Dozier, kidnapped in Verona, Italy, in December 1981.

The book is *Secret Warriors* (Putnam, 1988) by Steven Emerson. Emerson writes that in its effort to find Dozier the Pentagon turned even to psychics. "Many were interviewed at the Pentagon, and a half-dozen were sent to Italy. One psychic arrived in Vincenza and described to military officials his vision of where Dozier was being held captive. 'I see a small house, made of stone with a tile roof surrounded by a few trees,' the psychic said".

Emerson reports that Col. Norman Moffet, head of the Special Operations Task Force, thought this was less than useful, that the description could apply to any one of 17 million homes in northern Italy. But the Italians took it all very seriously, and they soon identified a house they thought the psychic meant.

"At night, a 500-man battalion was dispatched to the area, and soldiers quietly took up positions around the house. At dawn, the *carabinieri* launched an assault on the home. They found an innocent Italian family living there."

Dozier was eventually located in Padua by U.S. intelligence agents who had been tracking radio transmissions of Red Brigade members and tapping electric grids and telephone wires. He was then rescued in a raid by Italian anti-terrorist commandos.

—*K.F.*

The Romance of Knowledge

It is sometimes said that scientists are unromantic, that their passion to figure out robs the world of beauty and mystery, but is it not stirring to understand how the world actually works—that white light is made of colors, that color measures lightwaves, that transparent air reflects light, that in so doing it discriminates among the waves, and that the sky is blue for the same reason that the sunset is red? It does no harm to the romance of the sunset to know a little bit about it.

—Carl Sagan, "Skies of Other Worlds," *Parade,* May 1, 1988).
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MARTIN GARDNER

Notes of a Fringe-Watcher

Reich the Rainmaker: The Orgone Obsession

OF THE MANY fringe psychotherapies that flourished in the fifties, the two most bizarre were each founded by a paranoid egotist who had not the foggiest understanding of scientific method or even of the fields in which he claimed revolutionary discoveries. One was Scientology, the other was orgonomy.

Orgone energy—an energy no physicist outside orgonomy circles has detected—was "discovered" by Wilhelm Reich, who began his tragic career as an Austrian associate of Freud. After being expelled from the German Communist Party, and later from the International Psychoanalytic Association, Reich eventually settled in the United States, where he established a "laboratory" at Rangeley, Maine. Reich first discovered orgone energy in living things, hence its name, but he soon became convinced that it was a primeval force responsible for the evolution of the universe, for gravity, for life, and for the energy released in sexual orgasms. He announced that he had created living cells from inorganic matter and that cancer cells are actually protozoa that "have a tail and move in the manner of fish." Orgone energy, he insisted, made the sky blue and caused stars to twinkle, as if physicists hadn't long understood such phenomena.

Reich's main therapeutic tool was what he called an "orgone accumulator." It is a box about the size of a phone booth, its walls made of alternating layers of metal and organic material. (One is on display in St. Louis's National Museum of Quackery.) There are no electrical connections. You sit inside to soak up orgone energy that accumulates inside the box like heat in a greenhouse. The concentrated orgone is said to relieve symptoms of almost every illness from cancer to impotence. Smaller models, such as the shooter box, the orgone blanket, and the orgone funnel, apply orgone to ailing body parts.

Thousands of intelligent people with only a dim knowledge of science—including writers, artists, actors, educators, even philosophers—sat inside orgone boxes and believed they were enormously benefited. The comic Orson Bean sang the praises of orgonomy in his book *Me and the Orgone. WR: Mysteries of the Organism* was a comic film about orgonomy by Yugoslav filmmaker Dusan Makavejev, who had earlier been enamored of Reich's ability to stir together psychoanalysis and Marxism.

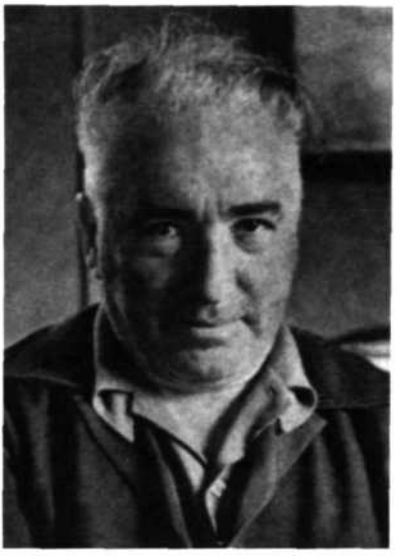
Unable to get published in mainstream journals, Reich came more and more to resemble a movie version of the mad scientist. He likened himself to such martyrs as Socrates, Bruno, Galileo, and Jesus. Soon he was discovering that orgone had a destructive side he called "DOR," an acronym for Deadly Orgone Energy. To dispel the DOR that accumulated in the atmosphere, Reich invented what he called a "cloudbuster." It consisted of long parallel pipes, their empty interiors "grounded" by hollow cables to a source of flowing water. Like a light-

ning rod, the machine was supposed to draw DOR from the sky. To his amazement, Reich found that his machine would also condense clouds and produce rain. "One may create clouds in the cloud-free sky in a certain manner by disturbing the evenness in the distribution of the atmospheric orgone energy. . . . The more clouds that are present and the heavier the clouds, the easier it is to induce growth of clouds and finally rain" (*Selected Writings*, p. 444).

This was topped by a still more sensational discovery. Reich observed that when his cloudbuster was operating it attracted EA's. EA stood for Energy Alpha, Reich's term for a UFO. (Reich was fond of acronyms like HIG for Hoodlums in Government, EPPO for Emotional Plague Prevention Office, and dozens of others.) EA's are propelled by orgone motors that give off vast quantities of DOR. At first Reich thought this was an innocent by-product of spaceships, but soon became convinced that evil aliens were spying on him and intentionally damaging the area. Fortunately his cloudbuster drained the DOR from their motors, forcing the EA's to flee.

In 1954, when Reich banished his first EA, he recorded the great event in his notebook: "Tonight for the first time in the history of man, the war waged for ages by living beings from outer space upon this earth . . . was reciprocated . . . with positive results." The battle took place in Arizona. Here is how Reich's son Peter described it in *A Book of Dreams*, a touching biography of his father:

> I was just about to go back downstairs when I saw it, hovering in the south. I watched it for a minute. It pulsated and glowed. Then I ran to get daddy. He was sitting in his work room at a long desk writing in one of his red ledger books. "Daddy, I spotted one. In the east. It looks pretty big." [Peter went to summon Reich's daughter, Eva, and her husband, Bill.]



Wilhelm Reich (1897-1956)

> Bill pulled out his binoculars. "Boy, it sure is something," he said, handing the glasses to Eva. She looked for a while and said, "I knew it would come."
>
> Daddy took off his hat and pushed his hand through his long silvery hair. "I wish I knew if this was an attack or if they were just observing the Earth."
>
> * * *
>
> I moved the cloudbuster slowly from one side of the EA to the other. I let it draw on the right side for a while and then dipped it slowly like a baby's cradle on a yo yo and rubbed back and forth at the sky beneath it before coming back up to the other side. I let the cloudbuster orunize on either side. . . .
>
> "Why it's gone!" Bill said. . . .
>
> Daddy said, "That was very good Peeps, very good. You are a real good little soldier because you have discovered a new way to disable EA's. I am very proud of you."

Reich's last and craziest book, *Contact with Space*, was published posthumously in a limited edition and is now extremely rare. It tells of his efforts to save the world from the CORE (Cosmic

Orgony Energy) men, Reich's term for the aliens from space. "On March 20, 1956, 10 P.M." the book opens, "a thought of a very remote possibility entered my mind, which I fear will never leave me again. Am I a spaceman? Do I belong to a new race on earth, bred by men from outer space in embraces with earth women?" What inspired this thought? It was seeing the science-fiction film *The Day the Earth Stood Still,* about a spaceman who comes to Earth in a flying saucer to save us from self-destruction in a nuclear war. "All through the film," Reich says, "I had a distinct impression that it was a bit of *my story* which was depicted there, even the actor's expressions and looks reminded me and others of myself as I had appeared 15 to 20 years ago."

In 1956 the Food and Drug Administration, convinced that orgone boxes were damaging the health of gullible people by keeping them from needed medical care, ordered Reich to stop shipping them across state lines. Reich defied the injunction and was hauled off to court, where he served as his own attorney. The court proceedings sketch a tragic picture of a man seriously ill with delusions of grandeur and persecution. Sentenced to jail for two years and fined $10,000, Reich entered Lewisburg Federal Penitentiary persuaded that President Eisenhower, whom he greatly admired, knew of his genius and would pardon him. Reich died in prison of a heart attack, at the age of 60, a few weeks before he was to be released. To the end he believed his persecution was a conspiracy by a group of "red fascists" inside the FDA who were trying to steal for Russia the secret Y factor he claimed was necessary to operate another of his inventions, a motor that ran on orgone energy.

One might have thought that today's orgonomists (science cults never die, they just slowly fade after the death of their charismatic gurus) would confine themselves to Reich's youthful contributions to psychoanalysis, which are reasonably sane and still greatly admired by many psychiatrists, but no—most of them buy it all. Almost all of Reich's books, including some of the funniest (unconsciously funny, of course, because Reich had no sense of humor), are back in print by Farrar, Straus, and Giroux, and a raft of books have been written about him. The worst is by Colin Wilson, England's intrepid journalist of all things occult. The most reliable biography is *Fury on Earth* (1983) by Myron Sharaf, whose own wife had an affair with Reich. As Reich's third wife, Ilse Ollendorff, discloses in her candid biography, Reich was intensely jealous of her, while insisting on the Victorian freedom to have sexual romps of his own.

In 1967 the remnant faithful founded the semi-annual *Journal of Orgonomy,* and a year later, the American College of Orgonomy. In 1987 the new "college" moved its headquarters from Manhattan to Princeton, New Jersey. Patricia Humphrey, wife of conservative Republican Senator Gordon Humphrey from New Hampshire, was chairperson of a committee that raised $2.5 million for a college building and is now conducting a drive for an additional $3 million.

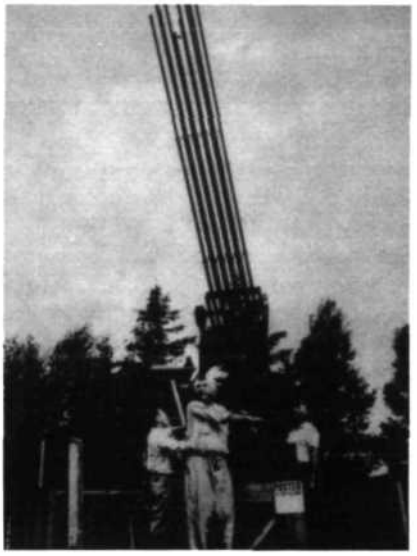
The most active rainmaker associated with the college is Dr. V. James DeMeo, Jr. He got his B.S. degree from Florida International University, Miami, in 1975, and his master's in 1979 from the University of Kansas, Lawrence. His thesis (available from Ann Arbor's University Microfilms, ID number 13-13336) is titled "Preliminary Analysis of Changes in Kansas Weather Coincidental to Experimental Operation with a Reichian Cloudbuster." His Ph.D. thesis (University of Kansas, 1986) is "On the Origin and Diffusion of Patrism: The Saharian Connection." Formerly an assistant professor of geology and geography at Illinois State University, Bloomington, he is now assistant professor of geography at the University of Northern Iowa, Cedar Falls.

DeMeo's cloudbuster, which he calls "Icarus," consists of ten parallel aluminum pipes, 3 inches in diameter and 18 feet long. The space inside the pipes is, as Reich specified, "grounded" by empty tubes to a source of nonstagnant water. When not in use, the lower ends of the tubes are stoppered and taken out of the water. The pipes can be raised, lowered, and swiveled by electrical controls to point at any spot in the sky. In an interview in Bloomington's *Daily Pantagraph* (August 9, 1983), DeMeo explained that water grounding was necessary because of a not-yet-understood property of water that relates it to air pressure and magnetism: "For example, when you soak in a tub of hot water, the water draws tensions from your body." In analogous fashion, the water alters the atmosphere's "tension parameter." To cause rain, the pipes are aimed not at the clouds but at nearby areas to relieve the "tensions" that prevent the clouds from releasing rain.

"Every phase of Reich's orgone theory was derived experimentally," DeMeo wrote in reply to angry letters in the *Pantagraph*. He accuses his critics of the same prejudice that persecuted Galileo and that provokes "otherwise calm and rational people into fits of irrational rage."

In a *National Enquirer* article that someone sent me undated, DeMeo put it this way: "The theory is simple enough. The atmosphere stagnates into deadly orgone and my machine simply conducts energy from the stagnant area." He claimed 13 rainmaking successes out of 15 attempts. When the machine is on, birds tend to flock around it, and to fly away when it's off. Cumulus clouds of moderate size dissipate when the pipes of Icarus are pointed toward them, but they grow larger when the pipes are aimed to one side.

In 1987, at the Arid Lands Conference in El Paso, Texas, DeMeo gave a paper on "A Cloudbusting Expedition into the Southeast Drought Zone, August 1986."



An anti-aircraft gun? No, it's a cloudbuster manned by Reich and two assistants.

Funded by the American College of Orgonomy, DeMeo and his associate Robert Morris, a Reichian therapist, took two cloudbusters into Georgia and South Carolina to relieve a major dry spell. From August 6 through 12 they moved the machines from place to place, at 13 different sites. DeMeo claims huge success in triggering rain. The cloudbusters operated poorly, however, in "areas where nuclear plants were located. . . . In those cases the orgone continuum around the cloudbuster became over-exercised, eliciting a mild to severe oranur reaction" that made everybody feel "uneasy." ORANUR was Reich's acronym for Orgonomic Anti-Nuclear Radiation.

DeMeo and Morris identify themselves as co-directors of Rainworks, and of the Orgone Biophysical Research Laboratory. DeMeo is tireless in traveling around the country giving profitable lectures and weekend workshops on orgone biophysics. He also makes and sells a variety of devices, such as the orgonotester ($1,500) and a pendulum that oscillates with orgone energy ($150). At the close of his El Paso lecture he thanked Fred Westphal for his help. Westphal is a philosopher at the University of Miami,

Coral Gables, and the author of two philosophy textbooks published by Prentice-Hall.

There are rival Reichian groups. Courtney Baker, M.D., son of the founder of the American College of Orgonomy, heads the Institute for Orgonomic Science, which issues an annual periodical. Lois Wyvell, former editor of the college's journal, now publishes her own quarterly, *Offshoots of Orgonomy.* Jerome Eden, in Carrywood, Idaho, issues a newsletter, heavily UFO oriented, from his Center for Orgonomic Education. These and other splinter groups are sharply hostile toward one another, and toward Mary Higgins, administrator of the Reich Infant Trust Fund, which owns and operates the Reichian Museum, in Rangeley. Eva Reich has unsuccessfully sued the fund for access to her father's papers, and Higgins has repeatedly sued Reichian groups for copyright infringements. Lore, Reich's other daughter by his first wife, is an orthodox Freudian analyst in Pittsburgh, with no interest in orgonomy.

When Reich first observed that heat inside his orgone box rose above room temperature, he wrote to Einstein asking for a meeting to discuss this discovery. They met in 1941. Later Einstein wrote to Reich that the temperature does indeed rise, but there is a simpler explanation than concentrated orgone. Reich called this the "Einstein affair." Poor Einstein! In Reich's eyes he lacked the vision to see the discovery of orgone as ushering in a new Copernican Revolution, and one that would save our planet from the twin dangers of a nuclear holocaust and an attack by extraterrestrials.

H. G. Wells, who had a doctorate in biology, did not have Einstein's kindly patience in dealing with cranks. A. S. Neill, founder of the famous Summerhill School, was one of Reich's strongest supporters. When he sent Wells a copy of Reich's most famous book, *The Function of the Orgasm,* Wells replied:

> Dear Neill,
>
> You have sent me an awful gabble of competitive quacks. Reich misuses every other word. . . . There is not a gleam of fresh understanding in the whole bale. Please don't send me any more of this stuff.

Neill shot back:

> Dear Wells,
>
> I can't understand why you are so damned unpleasant about it. I considered you the man with the broadest mind in England and sincerely wanted light on a biological matter I wasn't capable of judging myself. Your Black Out letter might have been written by Colonel Blimp. I hoped you would give an opinion on bions and orgones, whether they were a new discovery or not, and all I got was a tirade against Reich. You apply the word "quack" to a man whom Freud considered brilliant, a man who has slaved for years in a lab, seeking truth.
>
> I grant that I asked for it. I intruded. I apologise and . . . being a Scot . . . refund your postage. . . . But this is no quarrel, and I won't bother you again with Reich or anyone else.

Wells closed the exchange with:

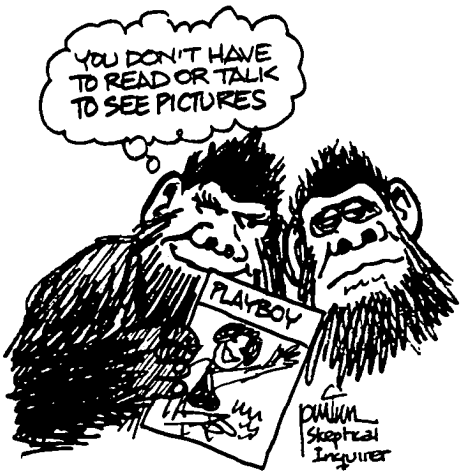
> Dear Neill,
>
> No, I decline your stamps, but this business is quackery. You call me a Blimp, I call you a sucker. Bless you.
>
> H. G. Wells •

Martin Gardner's latest books are The New Age: Notes of a Fringe-Watcher *(Prometheus) and* From Penrose Tiles to Trapdoor Ciphers *(W. H. Freeman).*

ROBERT SHEAFFER

Psychic Vibrations

AS THE 1980s draw to a close, more women than ever before are uneasily listening to their biological clocks ticking away loudly, and Koko is quite the same, even though she is a gorilla. At 17, she is approaching a gorilla's middle age, nearing the end of her reproductive years. However, what sets Koko apart from just *any* gorilla is her alleged mastery of inter- and intra-species communication using a modified sign language, although knowledgeable critics like Herbert Terrace, Thomas Sebeok, and Noam Chomsky, all experts in the field of communication and language, are not convinced. It has been left to the popular press to inform the public about such matters, a responsibility in which they have not been remiss. The loquacious Koko can allegedly tell us, in her own words, just what is on her mind, provided that trainer Penny Patterson is on hand to translate for her.



Life must be bittersweet for Koko at the Gorilla Foundation, a converted trailer on a fog-swept mountain ridge in Woodside, California, not far from San Francisco. "Want gorilla baby," Koko is now telling all and sundry, especially if they happen to be reporters; the *San Jose Mercury News* carried two different stories on Koko's heartache this spring. Striving to keep alive the manual-oral tradition of clever apes, Koko is so concerned about passing on her linguistic skills to her offspring that she is now said to spend much of her time practice-teaching signing to her dolls. She has also been complaining for some time about the chilly and often damp climate of the mountain forest, but Patterson's amplification of Koko's pleas has thus far failed to bring in sufficient funds to move the entire operation to more permanent quarters someplace warmer.

The oddest thing about the entire dilemma is that Koko lives with Michael, a perfectly healthy male gorilla, who unfortunately shows no sexual interest in her. For Michael, you see, is *also* a clever ape. He may not be as accomplished linguistically as Koko, because owing to his unpredictable and sometimes dangerous behavior he spends more time under physical restraint.

Nonetheless, Michael's "signing" has also been cited as proof of simian loquacity. It would seem that Patterson could take advantage of the communication skills of her charges and ask Michael for his cooperation. Failing that, Koko should easily be able to explain the matter to him herself. Koko seems to understand the mechanics of the reproductive

process well enough; she lifts her doll to her nipples, points, and reportedly signs "drink there." Why she has not been able to instruct Michael about the birds and the bees is a mystery that no mere human can understand. We shall have to wait for the gorillas to explain it to us.

* * * * *

As part of our continuing election-year coverage, we bring you more predictions from top seers and psychics. Late last year *Washingtonian* magazine consulted two leading astrologers for their election predictions: Warren Kinsman, a board member of the National Academy of Astrologers, and Susan Ugoretz, one of the most popular astrologers on Capitol Hill and author of the treatise "Lobbying With Astrology." (The matter of Ronald and Nancy Reagan consulting astrologers was indeed mentioned in this article, as it has been by James Randi and others for some time. For some reason the nation's press failed to notice it until Donald Regan's book came out. In fairness to the Republicans, we should note that former-president Jimmy Carter once claimed to have seen a UFO.) Here's how these Washington astrologers see things shaping up.

Looking at George Bush's chart, they exclaimed, "What terrible aspects!" They concluded that the Republican with the best astrological prospects this year was Jack Kemp: "He looks more like the Republican nominee. His chances look far, far better than George Bush's."

For the Democrats, they proclaimed that Michael Dukakis had "a dynamite chart," the best of any announced Democratic candidate. Looking at the chart for Jesse Jackson, they discovered that "he doesn't look like he wants to be president," which, if true, suggests that Jackson succeeded in fooling a lot of people.

Meanwhile, the unsinkable Jeane Dixon announced in January with characteristic directness that Robert Dole's campaign "will have its ups and downs." Bruce Babbitt "could become disillusioned and quit," and Michael Dukakis will go into the nominating convention "with a chance of coming out with one of the top spots." The only concrete statement she *would* make about the election was that she expected Bush to head the Republican ticket. Her mysterious powers neglected to tell her who would win in November, probably because no clear trend was yet visible in the polls. And in the tabloid *The Globe,* psychic Herb Dewey predicted that George Bush would name Judge Robert Bork as his presidential running mate. This column will announce the winner of the contest precognitively as soon as that information is available.

* * * * *

What's new in channeling? The *Washington Post* reports that Heung Jin Nim Moon, the late son of cult leader Sun Myung Moon, was "channeling" last fall through a student at the Reverend Moon's theological seminary, warning that he was watching and judging all that was going on. Then it was announced that the young man's spirit had reincar-

nated itself in the body of a young Zimbabwean member of the Unification Church. The fact that this man seems to have previously had no name of his own (or, if he did, nobody knows what it was) certainly did not make it harder for him to adopt the name of Heung Jin Nim Moon, his new incarnation and identity. What became of the soul that *previously* inhabited his body has not yet been explained; perhaps it departed to wherever his old name went. The Reverend Moon seems to have fully accepted the nameless Zimbabwean as his reincarnated son, despite rumors of the young man's extremely violent behavior and the concern of some that he may have been "planted" by North Koreans to attempt to discredit Moon. However, the Reverend Moon's followers should be able to reassure themselves that a man who is in such close communication with the Deity could not be fooled by any impostor.

* * * * *

If the subject of a recent newspaper interview can be believed, our government may have been worrying so much about the issue of "trust" in negotiating treaties with earthly powers that it has neglected this concern in its dealings with extraterrestrials. So suggests aviator John Lear, son of aircraft inventor Bill Lear. His interest in UFOs began in 1986, when he talked to someone in the U.S. Air Force who told him about an alleged face-to-face meeting between the Air Force and saucer aliens at Bentwaters, England. (The case has not impressed everyone as much as it has Lear; see "The Woodbridge UFO Incident" by Ian Ridpath, *SI,* Fall 1986, p. 77.) When he investigated further, he discovered what he calls the "horrible truth" about UFOs: Extraterrestrials have been on Earth for at least 25,000 years, watching us but not interfering—not, that is, until very recently.

As Lear explained in an interview in the *Las Vegas Review-Journal:* "The United States Government has retrieved and is keeping in storage between 20 to 30 flying saucers. Several are in perfect condition, and the Air Force has tried to fly at least two." He also claims that the Air Force has the bodies of at least 30 extraterrestrials, which are kept in cold storage. So far, this is a story we have heard many times before (yet it remains strangely unsubstantiated). But, Lear continues, "with the best of intentions the United States Government bargained with aliens to keep quiet about sightings and abductions in exchange for technological information." Unfortunately, he charges, the space creatures failed to keep their word, which if true constitutes a strong argument against going ahead with the Search for Extraterrestrial Intelligence, lest we run up against any more such galactic scoundrels. Not only have sightings increased (apparently the space aliens had promised to keep themselves more effectively hidden), but we have not been given the technology we bargained for (what *we* offered *them* is not at all clear); worst of all, the aliens have become heavy-handed in their treatment of the human race, abducting innocent persons, planting monitoring devices in their brains, and performing genetic experiments on abducted women. Fortunately for all of us, the evidence for what Lear says has no more substance than any other yarn we've heard about "space aliens"—which is none at all. •

Improving Human Performance: What About Parapsychology?

The National Academy of Sciences was asked to evaluate techniques—including parapsychological ones—claimed to improve human performance. Here is a summary of the findings of the committee's landmark two-year study.

Kendrick Frazier

IN 1984 the Army Research Institute asked the National Academy of Sciences to form a committee to examine the value of various techniques claimed to improve human performance. Most of these techniques had been developed outside the mainstream of the human sciences and most made quite extraordinary claims. Many of them grew out of the human-potential movement of the 1960s. They included guided imagery, meditation, biofeedback, neurolinguistic programming, sleep learning, accelerated learning, split-brain learning, and variety of techniques claimed to reduce stress and improve concentration. They Army was also interested in whether parapsychology had discovered helpful mental skills.

Many of these claims were regularly publicized in the media and gained considerable acceptance from the public. The promoters of these claims used the language of science but for the most part were not trained in science. They did appeal to the basic human drive to improve performance, however, and the U.S. Army understandably has a great interest in any legitimate techniques that can make its troops and support personnel more effective.

The Army asked the NAS committee to recommend general policy and criteria for future evaluation of enhancement techniques. The National Academy of Sciences is a private organization of the nation's most distinguished scientists. It is officially chartered by Congress to provide scientific advice to the U.S. government. Through its operating branch, the National Research Council (NRC), it can call upon scientific experts nationwide to address issues and problems of interest to the government.

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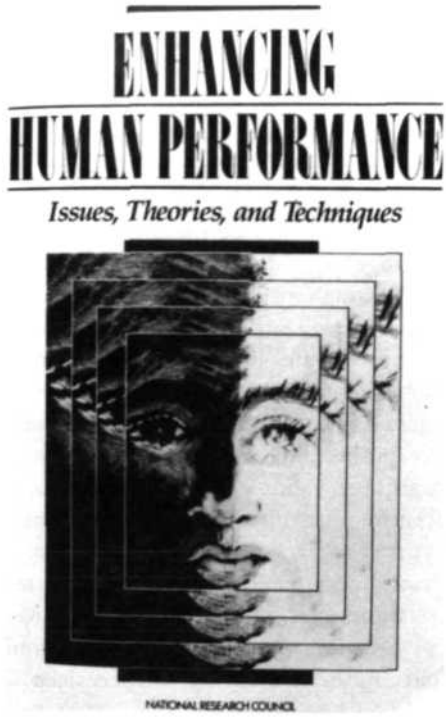
The NRC formed the Committee on Techniques for the Enhancement of Human Performance, chaired by John A. Swets of Bolt Beranek and Newman, Inc., in Cambridge, Massachusetts, and consisting of 13 members—psychologists, neurologists, training experts, and other scholars.[1] It also formed several subcommittees. The committee met with representatives of the Army, conducted site visits, commissioned ten analytical and survey papers, and examined state-of-the-art reviews of the relevant literature as well as unpublished documents. The result is a valuable 299-page report, *Enhancing Human Performance,* of wide general interest and available to the public.[2]



It is a significant study, and an unusual one for the Academy, which only on rare occasions has been asked to evaluate claims residing along the fuzzy fringes of science. In fact, the section on paranormal phenomena may represent the first time the Academy has ever addressed this controversial and emotional subject.

What follows is an overview of the report, a summary of its conclusions, and a summary of its longest section (the one that is perhaps of the most interest to readers of *SI*), on claims of paranormal phenomena.

Techniques Evaluated

The study quotes an estimate that American companies are spending $30 billion a year on formal courses and training programs for their employees. Even so, this is only the tip of the iceberg. The courses are actively promoted by entrepreneurs who probably realize there is a goldmine in selling self-improvement techniques.

The results of the study provide answers to several questions on how best to improve human performance.

There were some positive findings. It appears it may be possible to prime future learning by presenting material to a subject during certain stages of sleep (although not deep sleep). Learning can be improved by integrating certain instructional elements. Skilled performance can be improved through particular combinations of mental and physical practice. Stress can be reduced

by providing information to the subject that increases his or her sense of control. Group performance can be improved by using organizational cultures to transmit positive values. Nothing too surprising here.

There were some negative findings. The committee found a lack of supporting evidence for such techniques as visual-training exercisers, hemispheric synchronization, and neurolinguistic programming. It found a lack of scientific justification for the parapsychological phenomena it examined. It found ambiguous evidence for the effectiveness of a suggestive accelerated learning package.

Throughout its report, the committee emphasizes the importance of having adequate scientific evidence or compelling theoretical argument, or both, in support of any techniques proposed for consideration by the Army. And it comes down hard on the utility of testimonials as evidence: "Personal experiences and testimonials cited on behalf of a technique are not regarded as an acceptable alternative to rigorous scientific evidence. Even when they have high face validity, such personal beliefs are not trustworthy as evidence." Recent research on how people arrive at their beliefs "indicate that many sources of bias operate and that they can lead to personal knowledge that is invalid despite its often being associated with high levels of conviction."

Some specific findings and conclusions:

Learning During Sleep. The committee found no evidence to suggest that learning occurs during verified sleep. However, it found some evidence that waking perception and interpretation of verbal material could be enhanced by presenting the material during the lighter stages of sleep.

Accelerated Learning. The committee found little scientific evidence that so-called superlearning programs derive their instructional benefits from elements outside mainstream research and methods. Effective instruction comes from quality teaching, practice, study, motivation, and matching of training to job demands. "Programs that integrate all these factors would be desirable."

Improving Motor Skills. Motor skills can be improved by mental practice. Programs claiming to enhance cognitive and behavioral skills by visual concentration have not been shown to be effective and are not worth further evaluation. The effects of biofeedback on skilled performance have yet to be determined.

Altering Mental States. The committee was not able in the time allotted to evaluate self-induced hypnotic states or other techniques claimed to improve concentration and performance. It did review literature on brain hemispheres; this review "refutes claims that link differential use of the brain hemispheres to performance." The committee found no scientifically acceptable evidence to support claimed effects of techniques intended to integrate hemispheric activity. Attempts to increase information-processing capacity by presenting material separately to the two hemispheres do not appear to be useful.

Stress Management. Stress is reduced by giving an individual as much knowledge and understanding as possible regarding expected events. Giving

Neurolinguistic Programming: No Evidence

THE COMMITTEE found no evidence to support claims for the effectiveness of neurolinguistic programming (NLP)—a widely touted system of procedures and models that purports to enable people to be more influential and better communicators.

"In brief, the NLP system of eye, posture, tone, and language patterns as indexing representational patterns is not derived or derivable from known scientific work. Furthermore, there is no internal evidence or documentation to support the system. . . . Overall there is little or no empirical evidence to date to support either NLP assumptions or NLP effectiveness. Different critics may attach different values to the quality of these studies [testing one or another aspect of NLP], but the fact remains that none supports the effectiveness of NLP in improving influence or skilled motor performance."

the individual a sense of control is effective. Biofeedback can reduce muscle tension, but "it does not reduce stress effectively."

Influence Strategies. "The committee finds no scientific evidence to support the claim that neurolinguistic programming is an effective strategy for exerting influence." (See box.)

Parapsychology. "The committee finds no scientific justification from research conducted over a period of 130 years for the existence of parapsychological phenomena." This strongly worded conclusion is followed by the statement that "there is no reason for direct involvement by the Army at this time." The committee does recommend monitoring certain areas, such as the work being done in the Soviet Union and the "best work" in the United States. The latter includes research being carried out at Princeton University by Robert Jahn; at Maimonides Medical Center in Brooklyn by Charles Honorton, now in Princeton; at San Antonio by Helmut Schmidt; and at SRI International by Edward May. It suggests site visits by both proponents and skeptics. As for future studies, it recommends that a common research protocol be agreed upon; that this protocol be used by "both proponents and skeptics" in any research they conduct; and that practical applications be looked for.

Examination of Parapsychology

The report's largest single section is devoted to an examination of parapsychological techniques and claims of paranormal phenomena. A parapsychology subcommittee chaired by psychologist Ray Hyman of the University of Oregon, also a member of the overall committee, assisted with this part of the report.

The committee examined a range of claimed parapsychological phenomena from scientifically serious to near-trivial matters that people neverthe-

less sometimes take seriously.

Since the study was done for the Army it was inevitable that some claims that had been heard from parts of the military in recent years would be examined. These claims first surfaced in newspaper columns and later in several books.

Some of the military officers who had made these claims were invited to make presentations to the committee. They gave details of experiments at SRI International in which subjects were said to more or less accurately describe a distant geographical location by means of "remote viewing." The examples appeared to indicate some striking correspondences between the subjects' descriptions and the target sites.

The presentations included anecdotal descriptions of psychic mind-altering techniques, the levitation claims of Transcendental Meditation groups, psychotronic weapons, psychic metal-bending, dowsing, thought photography, and bioenergy transfer. The officers maintained that the Soviet Union is far ahead of the United States in developing applications of such paranormal phenomena. They gave personal accounts of spoon-bending parties in which participants believed they had bent cutlery by mind-power alone, as well as instances of walking barefoot on hot coals, leaving one's body at will, and bursting clouds by psychic means.

The committee examined these claims and those of "psychic warfare," often in the news in the 1980s. "The claimed phenomena and applications range from the incredible to the outrageously incredible," says the report. "The 'antimissile time warp,' for example, is supposed to somehow deflect attack by nuclear warheads so that they will transcend time and explode among the ancient dinosaurs, thereby leaving us unharmed but destroying many dinosaurs (and, presumably, some of our evolutionary ancestors). Other psychotronic weapons, such as the 'hyperspatial nuclear howitzer,' are claimed to have equally bizarre capabilities. Many of the sources cite claims that Soviet psychotronic weapons were responsible for the 1976 outbreak of Legionnaires' disease, as well as the 1963 sinking of the nuclear submarine *Thresher*."

The committee observed that some people, including some military decisionmakers, have imagined a variety of potential military applications of the two broad categories of psychic phenomena—extrasensory perception (ESP), which includes telepathy, precognition, and clairvoyance, all alleged methods of gathering information about objects or thoughts without the intervention of known sensory mechanisms; and psychokinesis (PK), the alleged influence of thoughts upon objects without the intervention of known physical processes, popularly called "mind over matter." ESP, if real, for example, could be used to gather intelligence and to anticipate the enemy's actions. PK, if real, might be used to jam enemy computers, prematurely trigger nuclear weapons, and induce sickness. One might plant thoughts in people's minds, erect psychic shields, and make psychotronic weapons. The committee noted that one suggested application was to form a "First Earth Batallion" of "warrior monks" who would have mastered the techniques the

committee was considering, including ESP, leaving one's body at will, levitating, psychic healing, and walking through walls.

The committee refers to these as "colorful examples" of claims. The question is whether they have any validity.

The committee says the cumulative body of data in the discipline of parapsychology—with reports since 1882—"enables us to judge the degree to which paranormal claims should be taken seriously." It notes that, as scientists, their inclination is to restrict themselves to evidence that purports to be scientific. But it recognizes the substantial appeal, and biasing influences, of the public's strong interest and beliefs.

"The alleged phenomena that have apparently gained most attention and that have apparently convinced many proponents do not come from the parapsychological laboratory. Nothing approaching scientific literature supports the claims of psychotronic weaponry, psychic metal-bending, out-of-body experiences, and other potential applications supported by many proponents.

"The phenomena are real and important in the minds of proponents, so we attempt to evaluate them fairly. Although we cannot rely solely on a scientific data base to evaluate the claims, their credibility ultimately must stand or fall on the basis of data from scientific research that is subject to adequate control and is potentially replicable."

So the committee examined "the best scientific arguments for the reality of psychic phenomena." (These turn out to be experiments on remote-viewing and research on the Ganzfeld, or whole visual field.) It then also considered the arguments of proponents who rely on "qualitative" or subjective as opposed to "quantitative" or objective evidence for the paranormal. The committee rightly recognized the compelling power of subjective experience in forming paranormal beliefs.

"Such evidence depends on personal experience or the testimony of others who have had such experiences. Most, if not all, of this evidence cannot be evaluated by scientific standards, yet it has created compelling beliefs among many who have encountered it. Witnessing or having an anomalous experience can be more powerful than large accumulations of quantitative, scientific data as a method of creating and reinforcing beliefs."

To evaluate the best *scientific* evidence for the existence of psi, the committee conducted visits to two noted parapsychological laboratories: Robert Jahn's Engineering Anomalies Research Laboratory at Princeton University and Helmut Schmidt's laboratory at the Mind Science Foundation in San Antonio, Texas. The chair of the parapsychology subcommittee also visited SRI International, another major laboratory, in California.

The committee gathered what insights it could from demonstrations of experiments and talks at these laboratories. It says it was impressed with the dedication and sincerity of these investigators. But it found many unresolved problems, and no standardized, easily replicable procedures. For making scientific judgments the committee relied, "as we would in other fields of science, on a careful survey of the literature."

The claims of remote-viewing, especially those by physicists Harold Puthoff and Russell Targ when they were at SRI International, were carefully examined and found to be so severely deficient as to be almost totally dismissable: "After 15 years of claims and sometimes bitter controversy, the literature on remote viewing has managed to produce only one possibly successful experiment that is not seriously flawed in its methodology—and that one experiment provides only marginal evidence for the existence of ESP. By both scientific and parapsychological standards, then, the case for remote viewing is not just very weak, but virtually nonexistent.

"It seems that the preeminent position that remote viewing occupies in the minds of many results from the highly exaggerated claims made for the early experiments, as well as the subjectively compelling, but illusory, correspondences that experimenters and participants find between components of the descriptions and the target sites."

Tests of Micro-PK

Random-number generators for parapsychological research next came under the group's scrutiny. A random-number generator (RNG) is simply an electronic device that uses either radioactive decay or electronic noise to generate a random sequence of symbols. It becomes essentially an electronic coin-flipper. The best-known and most widespread use of RNGs is in what proponents call micropsychokinesis, or micro-PK. A subject attempts to mentally bias the output of the random-number generator to produce a nonrandom sequence. Some departures from randomness have been reported. The question is what that means.

The committee examined Helmut Schmidt's experiments at San Antonio (averaging approximately 50.5 percent hits over the years) and Robert Jahn and colleagues' more than 200 times greater number of trials. In 78 million trials, the percentage of hits in the intended direction was only 50.02 percent, an average of 2 extra hits every 2,500 trials.

The committee says it looks as if all the success of Jahn's huge data base can be attributed to the results from one individual, who has produced 25 percent of the data. This individual was presumably familiar with the equipment. The Princeton experiments are faulted for such things as failing to randomize the sequence of groups of trials at each session, inadequate documentation on precautions against data tampering, and possibilities of data selection. Similar criticisms can be directed at Schmidt's experiments.

What would it take to conduct an adequate RNG experiment? The committee notes that one group, E. C. May, B. S. Humphrey, and G. S. Hubbard, in a project summarized in a 1980 SRI technical report, set out to do one. They reviewed all previous experiments, including their deficiencies, and devised a careful research protocol to overcome them. This included setting out in advance the precise criteria by which their test could be judged a success. They obtained successful results, and then subjected their equipment to all sorts of extremes to see if an artifact might have accounted for the results.

PK Parties and Self-Delusion

ANOTHER EXAMPLE of beliefs generated in circumstances that are known to create cognitive illusions is macro-PK, which is practiced at spoon-bending, or PK [psychokinesis] parties. The 15 or more participants in a PK party, who usually pay a fee to attend and bring their own silverware, are guided through various rituals and encouraged to believe that, by co-operating with the leader, they can achieve a mental state in which their spoons and forks will apparently soften and bend through the agency of their minds.

Since 1981, although thousands of participants have apparently bent metal objects successfully, not one scientifically documented case of paranormal metal bending has been presented to the scientific community. Yet participants in the PK parties are convinced that they have both witnessed and personally produced paranormal metal bending. Over and over again we have been told by participants that they know that metal became paranormally deformed in their presence. This situation gives the distinct impression that the proponents of macro-PK, having consistently failed to produce scientific evidence, have forsaken the scientific method and undertaken a campaign to convince themselves and others on the basis of clearly nonscientific data based on personal experience and testimony obtained under emotionally charged conditions.

Consider the conditions that leaders and participants agree facilitate spoon bending. Efforts are made to exclude critics because, it is asserted, skepticism and attempts to make objective observations can hinder or prevent the phenomena from appearing. As Houck, the originator of the PK party, describes it, the objective is to create in the participants a peak emotional experience. To this end, various exercises involving relaxation, guided imagery, concentration, and chanting are performed. The participants are encouraged to shout at the silverware and to "disconnect" by deliberately avoiding looking at what their hands are doing. They are encouraged to shout "Bend!" throughout the party. "To help with the release of the initial concentration, people are encouraged to jump up or scream that theirs is bending, so that others can observe." Houck makes it clear that the objective is to create a state of emotional chaos. "Shouting at the silverware has also been added as a means of helping to enhance the emotional level of the group. This procedure adds to the intensity of the command to bend and helps create pandemonium throughout the party.

A PK party obviously is not the ideal situation for obtaining reliable observations. The conditions are just those which psychologists and others have described as creating states of heightened suggestibility and implanting compelling beliefs that may be unrelated to reality. It is beliefs acquired in this fashion that seem to motivate persons who urge us to take macro-PK seriously. Complete absence of any scientific evidence does not discourage the proponents; they have acquired their beliefs under circumstances that instill zeal and subjective certainty. Unfortunately, it is just these circumstances that foster false beliefs.

—From *Enhancing Human Performance*

"It is unfortunate, therefore," notes the committee, "that this carefully thought out experiment was conducted only once. After the one successful series, using seven subjects, the equipment was dismantled, and the authors have no intention of trying to replicate it. It is unfortunate because this appears to be the only near-flawless RNG experiment known to us, and the results were just barely significant. Only two of the seven subjects produced significant results, and the test of overall significance for the total formal series yielded a probability of 0.029."

Even this experiment still had some problems. It was never reported in the peer-reviewed scientific literature. Despite the authors' equipment tests, a physicist with several years of experience in constructing and testing random-number generators told the committee it is quite possible for the human body to act as an antenna in some circumstances, possibly biasing the output.

The committee notes that May and his colleagues, in their technical report, surveyed all the RNG experiments up through 1979. They found all incomplete in at least one of four areas: (1) No control tests were reported in 44 percent of the cases. (2) Necessary details were not given about the physics and construction of the electronic equipment. (3) Raw data was not saved for later independent analysis. (4) None of the experiments reported controlled and limited access to the experimental apparatus.

Concludes the committee: "As far as we can tell, the same four points can be made with respect to the RNG experiments that have been conducted since 1980. The situation for RNG experiments thus seems to be the same as that for remote-viewing: Over a period of approximately 15 years of research, only one successful experiment can be found that appears to meet most of the minimal criteria of scientific acceptability, and that one successful experiment yielded results that are just marginally significant."

A variety of similar problems were noted with regard to the data base for Ganzfeld experiments. (See *SI*, Fall 1985.)

The Question of Subjective Evidence

The committee noted that it "continually encountered the distinction between qualitative and quantitative evidence" for the existence of the paranormal. Even scientists who believe in the paranormal in some way use or exploit the distinction. Often, the committee noted, proponents acknowledged that they themselves rely on subjective evidence for their own beliefs but referred the committee to the experiments at Princeton or SRI for supposed supporting quantitative data.

Most proponents, the committee noted, "seem impatient with the request for scientific evidence." As observers of paranormal belief systems have long known, most people are convinced through their experiences or the vivid testimonies of those they trust. Many even argue that qualitative evidence is superior to quantitative, and they offer a variety of holistic arguments.

The study addressed these questions directly.

"We see two problems regarding qualitative evidence. First, personal

observation and testimony are subject to a variety of strong biases of which most of us are unaware. When such observations and testimony emerge from circumstances that are emotional and personal, the biases and distortions are greatly enhanced. Psychologists and others have found that the circumstances under which such evidence is obtained are just those that foster a variety of human biases and erroneous beliefs. Second, beliefs formed under such circumstances tend to carry a high degree of subjective certainty and often resist alteration by later, more reliable confirming data. Such beliefs become self-sealing, in that when new information comes along that would ordinarily contradict them, the believers find ways to turn the apparent contradictions into additional confirmation."

The study provides two extended examples of such "problematic beliefs" formed "under conditions known to generate cognitive illusions and strong delusional beliefs." One involves the tests in 1974 at the University of London by John Hasted and a group of distinguished physicists on the apparent metal-bending and other supposed psychic powers of Uri Geller. The experimenters allowed Geller to dictate the conditions for the test, saying that the best results come when everyone is in a relaxed state, all present sincerely want him to succeed, and the experimental arrangement is "aesthetically or imaginatively appealing" to the subject being tested for PK. Mutual trust should be encouraged; the slightest hint of suspicion is said to stifle the appearance of the powers.

The committee chided Hasted and colleagues for their naivete. "In their quest for psi-conducive conditions, they have created guidelines that play into the hands of anyone intent on deceiving them. The very conditions that are specified as being conducive to the appearance of paranormal phenomena are almost always precisely those that are conducive to the successful performance of conjuring tricks."

PK parties, touted by some of the military officers who made presentations to the committee, are another example. (See box on p. 41.) "When proponents encounter a new phenomenon or psychic, they are strongly motivated to create conditions that will not drive the phenomenon away. The special atmosphere of PK parties and the suggestions of the British physicists are just two examples of attempts to generate psi-conducive conditions that also seem to be deception-conducive and bias-conducive."

Claims Lack Support

The parapsychology section of the NAS report concludes that, despite sweeping claims, the best available evidence does not support claims for the existence of ESP or for its applications. (See box "Conclusions.") In fact it concludes that the best scientific evidence "does not justify the conclusion that ESP . . . exists." As for psychokinesis, the other major category of alleged psychic phenomena, the conclusion is similar: "Nor does scientific evidence offer support for the existence of psychokinesis. . . ."

It notes that these conclusions go counter to many individuals' beliefs in

Conclusions on Psychic Phenomena

IN DRAWING conclusions from our review of evidence and other considerations related to psychic phenomena, we note that the large body of research completed to date does not present a clear picture. Overall, the experimental designs are of insufficient quality to arbitrate between the claims made for and against the existence of the phenomena. While the best research is of higher quality than many critics assume, the bulk of the work does not meet the standards necessary to contribute to the knowledge base of science. Definitive conclusions must depend on evidence derived from stronger research designs. The points below summarize key arguments in this chapter.

1. Although proponents of ESP have made sweeping claims, not only for its existence but also for its potential applications, an evaluation of the best available evidence does not justify such optimism. The strongest claims have been made for remote viewing and the Ganzfeld experiments. The scientific case for remote viewing is based on a relatively small number of experiments, almost all of which have serious methodological defects. Although the first experiments of this type were begun in 1972, the existence of remote viewing still has not been established. Furthermore, although success rates varying from 30 to 60 percent have been claimed for the Ganzfeld experiments, the evidence remains problematic because all the experiments deviate in one or more respects from accepted scientific procedures. In the committee's view, the best scientific evidence does not justify the conclusion that ESP—that is, gathering information about objects or thoughts without the intervention of known sensory mechanisms—exists.

2. Nor does scientific evidence offer support for the existence of psychokinesis—that is, the influence of thoughts upon objects without intervention of known physical processes. In the experiments using random number generators, the reported size of effects is very small, a hit rate of no more than 50.5 percent compared with the chance expectancy of 50 percent. Although analysis indicates that overall significance for the experiments, with their unusually large number of trials, is probably not due to a statistical fluke, virtually all

the reality of the paranormal. But it cautions against conclusions based on "alternatives" to the scientific method. "Alternative methods . . . create just those conditions that psychologists have found enhance human tendencies toward self-deception and suggestibility."

Notes

1. Members of the Committee were: John A. Swets, *Chair,* Bolt Beranek and Newman Inc., Cambridge, Mass.; Robert A. Bjork, Department of Psychology, University of California, Los Angeles; Thomas D. Cook, Department of Psychology, Northwestern University; Gerald C. Davison, Department of Psychology, University of Southern California; Lloyd G. Humphreys, Department of Psychology, University of Illinois; Ray Hyman, Department of Psychology, University of Oregon; Daniel M. Landers, Department of Physical Education,

the studies depart from good scientific practice in a variety of ways; furthermore, it is not clear that the pattern of results is consistent across laboratories. In the committee's view, any conclusions favoring the existence of an effect so small must at least await the results of experiments conducted according to more adequate protocols.

3. Should the Army be interested in evaluating further experiments, the following procedures are recommended: first, the Army and outside scientists should arrive at a common protocol; second, the research should be conducted according to that protocol by both proponents and skeptics; and third, attention should be given to the manipulability and practical application of any effects found. Even if psi phenomena are determined to exist in some sense, this does not guarantee that they will have any practical utility, let alone military applications. For this to be possible, the phenomena would have to obey causal laws and be manipulable.

4. The committee is aware of the discrepancy between the lack of scientific evidence and the strength of many individuals' beliefs in paranormal phenomena. This is cause for concern. Historically, many of the world's most prominent scientists have concluded that such phenomena exist and that they have been scientifically verified. Yet in just about all these cases, subsequent information has revealed that their convictions were misguided. We also are aware that many proponents believe that the scientific method may not be the only, or the most appropriate, method for establishing the reality of paranormal phenomena. Unfortunately, the alternative methods that have been used to demonstrate the existence of the paranormal create just those conditions that psychologists have found enhance human tendencies toward self-deception and suggestibility. Concerns about making the experimental situation comfortable for the alleged psychic or conducive to paranormal phenomena frequently result in practices that also increase opportunities for deception and error.

—From "Paranormal Phenomena,"
Enhancing Human Performance, NRC

Arizona State University; Sandra A. Mobley, Director of Training and Development, the Wyatt Company, Washington, D.C.; Lyman W. Porter, Graduate School of Management, University of California, Irvine; Michael I. Posner, Department of Neurology, Washington University; Walter Schneider, Department of Psychology, University of Pittsburgh; Jerome E. Singer, Department of Medical Psychology, Uniformed Services University of Health Sciences, Bethesda, Md.; Sally P. Springer, Department of Psychology, State University of New York, Stony Brook; Richard F. Thompson, Department of Psychology, Stanford University. Daniel Druckman, *Study Director.*

2. Committee on Techniques for the Enhancement of Human Performance, Commission on Behavioral and Social Sciences and Education, National Research Council, *Enhancing Human Performance: Issues, Theories, and Techniques,* edited by Daniel Druckman and John A. Swets (Washington, D.C.: National Academy Press, 1987); available from National Academy Press, 2101 Constitution Ave., N.W., Washington, D.C. 20418, cloth $32.50; paper $22.50. •

This article continues our coverage of CSICOP's visit to China.

The China Syndrome: Further Reflections On the State of Paranormal Belief in China

Paul Kurtz

THE SUMMER 1988 issue of the SKEPTICAL INQUIRER outlined the highlights of the recent visit to China by members of the CSICOP Executive Council and staff. During this stimulating trip, we were able to observe many Qigong masters and "psychic children." Does China have a "hidden treasure" of paranormal powers unlike anything known in the Western world, as some paranormalists have claimed?

Our examination of "psychic children" clearly demonstrated that there was no credible evidence that they possessed special powers. When tested under rigorous scrutiny, it was apparent that these children, aged 11 to 13, were unable to discern Chinese characters hidden from view or to repair or break matchsticks in sealed boxes by the unaided powers of their minds. Indeed, we observed blatant cheating on the part of the youngsters and incredible gullibility on the part of the so-called parapsychological researchers, who were predisposed to accept the children's alleged powers at face value. Thus we found that there are two common psychological tendencies—deception and self-deception—that can explain their many claims of "extraordinary feats."

A most shocking illustration of this was the incontrovertible case of cheating by children in Xian and the incredible willingness of the chief researcher, Mr. Ding Wu Xin, to believe that the children had behaved honestly, even when confronted by evidence to the contrary.

We tested these children for psychokinesis. When we observed them under strictly controlled conditions and they were not permitted to remove the matchboxes from sight, the results were negative. When Mr. Ding conducted the experiments, he allowed the children to leave the room for long periods of time and to take the matchboxes with them. When faced with an obvious case of physical tampering with one of the boxes, he refused to acknowledge

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After cheating is discovered, Lin, Kurtz, and Alcock appeal to Mr. Ding (taking notes) to conduct any future tests with scientific controls and careful observations.

that the children had cheated and sought to find some pretext to explain the evidence.

Scientists at the Medical Institute of Sichuan Province had conducted similar tests for clairvoyance and found that in every case where there was apparent clairvoyance, there was strong evidence of tampering with the sealed containers.

What we discovered in China is not unique to that country. Several years ago, physicists John Hasted and John Taylor tested children in Britain for the ability to bend spoons with their minds. Taylor initially found that when the children were under close observation, nothing happened; when they were left to their own devices, "psychokinesis" was apparently accomplished. He attributed this to the "shyness effect." When skeptics later criticized the protocol, the children were viewed while they were alone in the room through a one-way mirror. Lo and behold, the children were seen bending the spoons with their hands!

Ever since the Fox sisters were found to be tricksters, it has been clear that many children do cheat, and for a variety of reasons. Kate and Margaret Fox gave birth to the spiritualist movement when, in 1848 in Hydesville, New York, they learned that they could furtively rap their toe knuckles on the floor or against a bedstead and that people would be all too prone to believe that these sounds were being communicated by discarnate spirits.

Much later Margaret made a public statement admitting that it was all a trick—though spiritualists, deluding themselves, have steadfastly maintained that the Fox sisters' powers were genuine.

Thus the Chinese children were not unique in their ability to deceive adults. Nor were the researchers unique in their willingness to be deceived.

It is true that China has been isolated from the rest of the world and that experimental psychology as practiced in the West is far more sophisticated in designing rigorous testing protocol. Yet many Western scientists were taken in by Uri Geller and were, like Mr. Ding, easily hoodwinked into believing in psychic powers.

It was made clear to me that, in spite of the vast ocean and the significant cultural differences that separate us, the will to believe is as common in China as it is in other parts of the world. The skeptics we encountered—a fairly small group of researchers—considered themselves to be a beleaguered minority, overwhelmed by a larger culture that was willing to accept the paranormal as true without question.

The special role of Marxist ideology—particularly the Leninist-Maoist brand—complicates the situation in China today. Orthodox Marxists are materialists and suspicious of parapsychology on theoretical grounds; and the antagonism of Maoist diehards toward parapsychologists has been strong, especially so during the Cultural Revolution. This is unfortunate, since hypotheses should not be rejected on a priori or philosophical grounds. One should examine the evidence in the laboratory. Doctrinaire Maoists espouse certainties and are suspicious of the skeptical mind-set. Thus genuine science and learning languished during the Cultural Revolution. According to the Marxist economic theory of history, belief in the paranormal is a manifestation of the derived "superstructure" of society. I asked some Marxist theoreticians how this belief-system could persist in the face of the massive changes that have occurred in the forces and relationships of production in the economic substructure of Chinese society. Their response was that China was still only in the "preliminary stages of socialism."

Present Chinese policy is to encourage some liberalism and freedom. Widespread popular espousal of paranormal claims has cropped up only in the past decade—perhaps in reaction to the earlier strict prohibitions against them. The pendulum has now swung the other way. Unfortunately, skeptical critiques based on the failure of experimental replication in the laboratory and reports of the evidence of cheating are rarely published in China.

I have been told by many Chinese people that there is a split in the party. China is a nation in which the influence of personalities predominates, and several of China's leading scientists—notably Tsien Hsue-Shen, a well-known rocket expert—believe in the paranormal, which they maintain is on the "frontier of science." The Chinese regime in the past decade has encouraged the establishment of paranormal societies all over China. Did they perhaps suspect that these findings might have military applications? Or does belief in the paranormal simply express an underlying religiosity, the "transcendental temptation," as I have described it elsewhere?

While in China, we sought to emphasize two points: First, that paranormal claims should not be rejected on a priori grounds; the primary issue is whether there is experimental evidence that can be replicated. Second, that science is a method of inquiry that should be cultivated, especially among the young. This means an appreciation for critical thinking, with a mind open to hypotheses not yet tested, and skepticism toward those that have not been supported by the evidence. This second point may be considered especially threatening to a Marxist regime, which does not wish its own premises to be questioned by students, intellectuals, or the public at large.

Of considerable interest is the role that ancient belief-systems play in

Woman psychic attempting to diagnose health problems of CSICOP delegation.

present-day China, such as those that are part of traditional Chinese medicine. We surely cannot reject any of these practices out of hand. Some of them may be psychologically helpful or medically therapeutic, but we don't know if they have been clinically tested. Each has to be judged on its own terms. During our trip, when James Alcock contracted a bronchial infection, he went to the leading hospital in Beijing for treatment. It was the cause of considerable amusement when he asked for antibiotics and was given some by the resident physician—together with a generous supply of snake bile, a popular remedy in China. Alcock took the antibiotics, but said he would keep the snake bile in his medicine cabinet at home.

As mentioned in our earlier report, we did conduct a preliminary test of one form of traditional Chinese medicine—external Qigong. Internal Qigong is based on a relaxation response and may be effective. In external Qigong, a master can allegedly transfer an energy force—"Qi"—to his patients from a distance. They also claimed that they could diagnose a patient's illness by psychic means.

When we tested both of these claims, we got negative results. The Qigong masters, convinced of their powers, were annoyed and upset by our method of testing, and by the results.

One salient point emerges as we examine paranormal belief-systems around the world: a belief-system does not have to be true to be accepted. Belief-systems have other psychological functions. This is illustrated by the popularity of astrology, in which the "stretch-sock principle" operates. People will stretch astrological readings and horoscopes to fit themselves; they seek to *self-validate* them—even if they are so general that they apply to everyone. The placebo effect is also very strong: If people *believe* that something will make them better, this may contribute to some improvement in their condition. What is so disconcerting is that once a belief-system is firmly entrenched, there is great resistance to criticism; it is either ignored or explained away.

Perhaps the most interesting thing about paranormal beliefs in China is that we find the same psychological processes at work there that have been found in many other parts of the world. •

Backward Masking, and Other Backward Thoughts About Music

An examination of fundamentalists' folk beliefs that rock music contains hidden satanic messages inspired by the Devil, and of other worries about music and mind control.

Tom McIver

ACCORDING TO many fundamentalists and other conservative religious believers, rock music contains hidden satanic messages. These messages are allegedly embedded in the music by the Devil himself or by the rock performers—who may be either unwitting or deliberate satanic agents—by means of occult inspiration and electronic overdubbing. Believers maintain that listeners' brains can subconsciously decode these backward sounds. Their satanic meaning registers subliminally and is not subject to ordinary conscious appraisal and evaluation, giving the Devil a potent propaganda tool.

This strange religious folk-theory claims empirical and scientific validation. Its promoters cite studies of subliminal perception and point to advertising conspiracies and to documented forms of brainwashing and mind-control techniques They also triumphantly reveal the actual hidden messages by listening to rock recordings played backward. The dangers of backward masking (also called "backmasking") are denounced in several books and fundamentalist journals, by many television and radio evangelists, and most dramatically in traveling lecture presentations illustrated with slides and musical examples.

Backward masking is a prime concern of Gary Greenwald, pastor of Eagle's Nest Ministries of Santa Ana, California. Greenwald presents seminars on it around the United States and Canada, preaches against it frequently on

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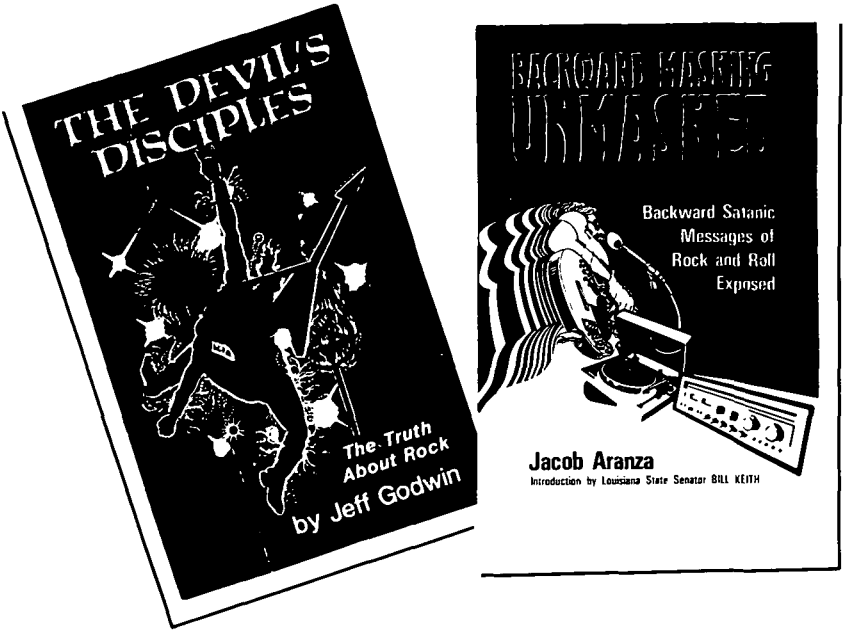
Tom McIver wrote "Ancient Tales and Space-Age Myths of Creationist Evangelism," in our Spring 1986 issue.


THE DEVIL'S DISCIPLES
The Truth About Rock
by Jeff Godwin
BACKWARD MASKING UNMASKED
Backward Satanic Messages of Rock and Roll Exposed
Jacob Aranza
Introduction by Louisiana State Senator BILL KEITH

Some of the literature about supposed backward masking and hidden Satanic messages in rock music.

his weekly television show, and offers several tape cassettes for sale on the subject.

Another leading exponent is youth evangelist Jacob Aranza, author of *Backward Masking Unmasked: Backward Satanic Messages of Rock and Roll Exposed* (1983), and its sequel, *More Rock, Country and Backward Masking Unmasked* (1985). Aranza's 1983 book has an enthusiastic foreword by former Louisiana State Senator Bill Keith, president of the Creation-Science Legal Defense Fund and author of the Louisiana creation-science bill that was struck down by the Supreme Court in 1987. Aranza, who was heavily involved with drugs and rock music as a youngster, now lectures at high schools and colleges, on radio and television, and overseas.

The Devil's Disciples: The Truth About Rock, by Jeff Godwin (1985), is a detailed and comprehensive indictment of the evils of rock music. Godwin, a former rock and roll junkie, exposes Satan and his demons as the force behind this music and describes the insidious technique of backward masking. Jack Chick, Godwin's publisher, is best known for his fundamentalist comic books and comic-book-style tracts, especially his savagely anti-Catholic and anti-evolution material. One of Chick's comic books is *Spellbound?*—a lurid tale of Satan's use of rock music to send souls to Hell and of the witches and Druids who implant demons in rock records. In a climactic scene, the heroic pastor exhorts a crowd of teens to cast their records on a huge bonfire.

Dan and Steve Peters are full-time crusaders against the evils of rock music. The Peters Brothers (brother Jim used to be involved too) head Truth About Rock Ministries, in St. Paul, Minnesota, and have been presenting rock-music seminars around the country since 1979. They offer *Backwards*

Masking: How Subliminals Affect You (1983), *Rock's Hidden Persuader: The Truth About Backmasking* (1985a), a variety of audiotapes (e.g., 1985b) and videos, and their monthly *Truth About Rock Report.* The Peters Brothers, Greenwald, Godwin, and other backmasking enthusiasts incite their followers to frenzies of mass record-burnings.

John O'Connor (1985), a conservative Catholic priest, joins the battle with *Hell's War Against Our Children,* in which he exposes and condemns this insidious technique with a fervor matching that of Protestant fundamentalists. Other proponents, according to John Vokey and J. Don Read (1985, pp. 1231-1232), are Michael Mills of Research Ministries (Battle Creek, Michigan), who tours the country warning about backward masking; Allan Lamothe of Quebec, Canada, who lectures to schools and church groups and has published a book on backward masking; and Hot Springs minister Don Hutchings, who lobbied successfully for the Arkansas law (later struck down in court) requiring that tapes and records carry the message: "Warning: This record contains backward masking which may be perceptible at a subliminal level when the record is played forward."

In 1982 State Assemblyman Philip Wyman proposed a bill to the California Consumer Protection and Toxic Materials Committee requiring that same warning label; the bill died in the California Senate. Wyman's office said it was awaiting results of a U.S. congressional subcommittee investigation before pursuing the matter again (Peters 1985a, p. 89). Don Glickman of Kansas, who proposed these congressional hearings, was reportedly considering introducing a national bill.

Mix of Imagined and 'Real'

The actual examples of backward masking revealed in these seminars, books, cassettes, and sermons are almost always the same. This standard litany is a mixture of the imagined and the "real." (There are a few cases of words actually dubbed in backward.)

Some of the claims:

- A Beatles' song with the lyrics "number nine, number nine" sounds like "turn me on, dead man" when played backward. (Beatles fans were at this time titillated by rumors that Paul had died, and they found tantalizing clues confirming his secret demise on the album covers and hidden in the music.) A filler between two songs says "Paul is a dead man. Miss him, miss him" backward.
- Black Oak Arkansas has a song with the backward message "Satan, Satan, He is God, He is God."
- An Electric Light Orchestra (ELO) song contains the message "Christ, you're the nasty one you're infernal" in reverse.
- "Another one bites the dust," a song by Queen, sounds like "decide to smoke marijuana, marijuana" when played backward.
- A song by Styx about cocaine says "Satan, move in our voices" backward.

• "A Child is Coming," by Jefferson Starship, has the words "Son of Satan" backward.

• "Here's to my sweet Satan" is what the words "there's still time" resemble backward in the Led Zeppelin song "Stairway to Heaven." A song on their "Houses of the Holy" album contains the words "Satan is really Lord" in reverse.

• The lyrics "This could be heaven or hell" in an Eagles song turn out to be: "Yes, Satan, he organized his own religion. . . . It was delicious. . . . He puts it in a vat and fixes it for his son and gives it away" backward.

• Pat Benatar's song "Evil Genius" says, in reverse, "Oh-h, Satan, that's why I want you to hear my music. The voice that makes my money."

• "I love you, said the Devil" appears backward in a Rolling Stones song.

• Motley Crue's "Shout at the Devil" album supposedly contains the backward phrase "Backward mask where you are, oh, lost in error, Satan."

• Venom's "Welcome to Hell" album has "It's better to reign in hell than to serve in heaven" backward.

The Bee Gees, Ozzy Osbourne, Iron Maiden, AC/DC, Hall and Oates, and a few others are also routinely accused of including backward masking on their records.

Some examples of backward messages are clearly deliberate. An ELO song contains this backward message: "The music is reversible, but time is not. Turn back, turn back, turn back." A Pink Floyd album played backward yields this: "Congratulations! You've just discovered the secret message. Please send your answer to Old Pink care of the funny farm. . . ."

The Devil is allegedly responsible, directly or indirectly, for these backmasked messages urging rejection of Christ and promoting satanic worship and all manner of immorality. Can there be godly messages backmasked in music as well? Believers differ on this question. A backward segment in Prince's "Purple Rain" album says: "Hello, how are you; I'm fine, cause I know the Lord is coming soon." Aranza (1985, p. 12) declares this to be sheer mockery in light of Prince's blatant sexual immorality. But the theological question remains: Is backmasking an inherently evil technique? "We've been amazed," say the Peters Brothers, "that in some recent gospel albums there is

backmasking on them advocating the Gospel of Jesus Christ" (Peters and Peters 1985b). David Kotzebue, of Shatter the Darkness Ministries in Denver, reveals that backmasking has been discovered in Christian music. In *The Beat and the Beast* ("Antichrist Is Coming! Millions Are Being Conditioned for His Arrival!"), he explains that these always praise God or Jesus, not the Devil. "This just goes to substantiate my hypothesis that either the Devil or God inspires all music!" (Kotzebue 1982, p. 21). There is indeed a certain logical consistency in this discovery. Most others, however, declare that backmasking is a deceptive technique, hence purely satanic.

Subliminal Messages?

Most exposés of backmasking begin with a discussion of social psychologist James Vicary and his Subliminal Projection Company. Vicary flashed messages on the screen between the frames of a movie. Each exposure was far too brief to be consciously perceived. This was first tried commercially in 1956 in a Fort Lee, New Jersey, movie theater, flashing the phrases "Eat popcorn" and "Drink Coca-Cola." Reportedly, popcorn and Coke sales went up dramatically, though there seems to have been no scientific testing of these results. Vance Packard's book *The Hidden Persuaders* (1957), about motivational research—mainly advertising—refers often to Vicary, though not to this experiment. Packard's later book, *The People Shapers* (1977, pp. 135-138), however, does include it and other examples of attempted use of subliminal advertising. Most of the backmasking books cite Packard's examples almost verbatim, along with cases reported by Wilson Bryan Key, who Packard cites as an authority. Key and his claims were the subject of a recent article in *SI* (Creed 1987). The examples in the next three paragraphs may be found in either Packard or Key, or both, and are repeated in most backmasking books.

In 1957 another company, Precon Process and Equipment, began using subliminal messages in movies and billboards, receiving a patent for their technique in 1962 (which is not proof that the technique is effective). Also in 1957, WTWO-TV in Bangor, Maine, experimented with subliminals. They could not detect any effect, but this did not stop other television and radio stations from trying. Warner Brothers was sued in 1979 by an Indiana teenager who fainted and injured himself during the movie *The Exorcist,* which used subliminal images to enhance its effect, as did other movies.

The Federal Communications Commission expressed "deep concern" over the use of subliminals in the broadcast media, but did not attempt any regulations, claiming subliminals would fall under the jurisdiction of the Federal Trade Commission. In 1973, the FCC itself allowed the message "Give yourself up" to be flashed during an announcement about a murder. (The murderer didn't.) The same year, "Get it" was flashed subliminally during a television ad for Husker Du, a children's game. This prompted the FCC to denounce such advertising techniques as deceptive—whether or not they were effective. A Canadian broadcaster reportedly discovered subliminals

in both Voice of America and Radio Moscow broadcasts, both sides apparently fearing a "subliminal gap." Broadcasting of subliminals was banned in Belgium and Great Britain. In 1974 a United Nations Human Rights Commission task force recommended a similar prohibition (E/CN.4/1142/Add 2) and denounced subliminal indoctrination as potentially destructive of traditional cultures.

Hal Becker, an engineer who has been experimenting with visual subliminal techniques since the 1950s, introduced a device in 1978 that inserted audio subliminals in music tapes. *Time* magazine reported (1979) that Becker's "little black box" had been installed in 50 department stores to discourage shoplifting. Messages like "I am honest; I will not steal" are repeated rapidly and mixed into the background music at very low volume. They "apparently influence behavior": stores involved reported significant reductions in theft. There are now many companies selling motivational cassette tapes using subliminal suggestion. Becker and others have worked with sports teams to increase motivation and performance.

Packard wrote about a wide range of manipulative and behavioral-modification techniques. Wilson Bryan Key focuses on insidious subliminal visual techniques used by advertisers. His three books (the first with an introduction by Marshall McLuhan) have provided much of the justification for the effectiveness of backward masking. He began to discover subliminal messages in print advertising; he looked more closely, and now sees them everywhere. These subliminals are pictures or words referring to sex or death. The most prevalent is the word *sex* itself, which Key sees cleverly disguised in most magazine ads, added by retouch artists or by transparent overlays. The common nonverbal images he detects are male and female genitalia, faces and bodies, beasts, skulls, and devils. These words and symbols, says Key, are perceived subliminally and cause us to remember and be attracted to the product. See Creed (1987) for further details.

Although Key's main concern has been visual media, he has considered cases of subliminal influence in sound and music. In his first book (1973, pp. 31-32), he says that "subaudibles" are inserted into rock records, influencing listeners to turn the volume way up in order to perceive them. Key says *The Exorcist,* which he analyzes in detail, used subliminals in its Oscar-winning soundtrack as well as on the screen; sounds of buzzing bees and squealing pigs were cleverly mixed at different frequencies and sound levels. Key also points out that the Lord's Prayer is embedded in a record by Cheap Trick at eight times normal speed.

Key asserts that visually embedded words can be subliminally perceived even if upside down or backward. He also uses the term "backward masking" in its original psychological meaning (not the distorted meaning attributed to it by fundamentalists). Key refers to a song by Blue Swede to illustrate "backward masking": It includes a background chant that sounds like nonsense syllables, but later changes—imperceptibly, to the conscious mind—to a distinctly enunciated "Who got sucked off?" (Key 1976, p. 118). Elsewhere Key (1973, p. 34) states that "backward masking" has commonly been used in

television commercials (notably Coca-Cola) and programs ("Laugh In"): Brief, emotion-laden bits (jokes, e.g.) are spliced into longer sequences; the mood of the later sequences is flavored by the emotion engendered and carried over by the short bits, whose fleeting existence is "masked."

Key also demonstrates the existence of the ubiquitous subliminals in the same fashion as the exponents of backmasking in music. "Relax," Key repeatedly advises; breathe deeply and concentrate intently on the picture. In this suggestible state, Key then tells us specifically what it is we are supposed to see emerging out of the picture. The photo illustrations he includes are accompanied by explicit overdrawings of the secret words and images. Greenwald, Aranza, and the Peters Brothers likewise urge us to listen intently as they tell us exactly what it is we are supposed to be hearing.

Though Key denies this, most of his evidence, like most backmasking evidence, is simply projection by the viewer/listener upon the photo or the music; the precise equivalent of Rorschach inkblot interpretations. Thus in most cases the alleged subliminal messages indicate not the secret intent of a music or advertising conspiracy, but the concerns and obsessions of the interpreter: sex, death, media conspiracy, and corporate greed for Key; sex, drugs, immorality, rejection of Christ, and Satan worship for the prophets of backmasking. (Thorne and Himelstein [1984]) discuss the role of suggestion in the perception of backmasked messages.)

I am not claiming that subliminal perception does not exist. Some scientific evidence indicates that sensory inputs not consciously perceived may still be registered by the brain; however, the whole field of subliminal perception and influence is highly controversial. There is much misunderstanding about the concept of "subliminal." It has no connotation of our perception being "unconscious" or mysterious (Bourbon 1987-88). Furthermore, the scientific studies confirming subliminal influences so eagerly cited by the backmasking prophets are contradicted by other studies in which no influence is detected.

People see many different images in clouds. Gary Greenwald (1981; 1982) sees wonderful things in the Orion nebula, just as he hears disgusting things in backward rock music. He believes the Orion nebula is the Great Hole in the North leading to Heaven, and that astronomical observations prove that Heaven itself is descending toward Earth.

Catholics so disposed see apparitions of Mary and Jesus in bushes, garage doors, and tortillas. The continuing apparitions of Veronica Leuken of Bayside, New York, resulted in the establishment of the Our Lady of the Roses Shrine (now relocated in the Vatican Pavilion on the grounds of the 1965 World's Fair on Long Island, though not approved by the Catholic hierarchy). Many of the faithful who flock to the shrine to hear Mary and Jesus (via Leuken) and to see the miraculous visions take snapshots that appear to be supernaturally altered, becoming further proof of Jesus and Mary's presence. These photos look remarkably like double exposures, odd reflections, and even some outright fakes; also involved is the marvelous capacity to read expected images into vague shapes and entities. (See Our Lady of the Roses Shrine 1986.)

Music and DNA?

A SCIENTIST with impressive credentials has proposed that music is programmed into our very genes. Susumu Ohno, who holds a chair as Distinguished Scientist in Reproductive Genetics at the Beckman Research Institute of the City of Hope Medical Center in Duarte, California, believes he has discovered a "primordial secret": a direct relationship between music and DNA sequences. He has devised a simple system to transcribe the four DNA bases (which code for all the amino acid sequences of which proteins are constructed) into the eight notes of the musical scale. The DNA bases of heavier molecular weight are assigned the lower notes; the lighter bases correspond to the higher notes. Each base can be either of two consecutive notes. (Needless to say, there is a great deal of leeway in this transcription system—duration of each note is unspecified, and there is a choice of notes for each base.)

To Ohno, this is not just a game. He is convinced that the resultant melodies correspond to the genetic information. Repeating base sequences explain repeating patterns in music. Oncogenes (cancer-causing genes) sound somber and slightly out of control. A synthetic antibody that detoxifies phenol sounds lively and light-hearted. As reported in the *Los Angeles Times:*

> An enzyme that breaks down lactose—simple milk sugar—sounds like a lullaby. The tune, recorded by a violinist, has been played in several kindergartens in Tokyo and always helps put the children to sleep at nap time, Ohno said. [Ricks 1986, p. 1]

It works in reverse, too. Chopin's "Funeral March" transcribed into a genetic sequence "resembles a cancer-causing gene." Chopin's Opus 55, No. 1 Nocturne, resembles the last exon of the largest subunit of mouse RNA polymerase II. Ohno devised a melody from the first 106 codons of this gene section, which most listeners identified as Chopin (though not the Nocturne). It has a lively dance cadence; RNA polymerase is not nocturnal—it has to engage in transcriptional activity night and day (Ohno and Ohno 1986). Ohno thinks that specific functions of genes can be discerned by simply listening to the DNA melodies of transcribed frequencies.

—*Tom McIver*

The Real Questions

There are two major questions concerning the examples of alleged subliminal images and messages, as Vokey and Read (1985) emphasize in their study of the backward masking issue. (Their findings are nicely summarized in Tisdall 1983.) The first is: Do these alleged images and messages actually exist? In

most cases they do not. However, this is slightly complicated by the presence of undoubtedly real messages and images, embedded either to tease the fundamentalists, as a gimmick to arouse interest and increase sales, or perhaps even because the artists or technicians actually believe in their efficacy—or at least want to give it a try. Except for this small percentage of deliberate subliminals, most examples seem to be simply constructions or projections by the more imaginative (paranoid?) listeners and viewers, who then coach and exhort their followers to see and hear the same messages and images.

The second major question is: Could such subliminals—whether they actually exist or not—have the effect that the anti-backmasking crusaders ascribe to them? Can they in fact be perceived subliminally, and do they affect attitudes and behavior? Vokey and Read, cognitive psychologists, properly recognize that this is the more significant question, and they have examined the professional literature and tested this proposition using controlled scientific tests. Their study shows that visual subliminals like those Key warns about and the backward-masking messages that Greenwald lectures on are not perceived either consciously or unconsciously.

The profound and seemingly magical effects of music have been wondered about and analyzed since ancient times. The various theories proposed through the ages to account for these psychological, physiological, and spiritual effects fall into two major groups: theories that ascribe the effects to the music itself (rhythm, melody, harmony, instruments), and theories holding that the lyrics—the words sung to the music—are the causative factor.

Plato and Aristotle both held the music itself responsible, though they differed as to which aspects were causative. A generation before Plato, the Athenian musician Damon had stressed the great moral and thus political effects of different kinds of music. Both Plato and Aristotle concurred in this and sought to explain these different effects and suggest ways to control them. (Their views regarding the effects of music, and especially concerning the different modes, were controversial even in their own day, but have had considerable influence.)

Plato, like many since, thought that music held great power over people's minds and sought to control it politically. Plato considered music education (*musike:* that which is inspired by the Muses—e.g., the arts and literature; also *harmonia:* harmony—acoustical relations of pitch—e.g., mathematics and science) necessary to complement the fiercer, more warlike training of the ruling class, to prevent them from becoming tyrannical and unjust. But in other passages he seeks to ban music that is "weak" and "effeminate" as a dangerous and unhealthy influence, such as music in certain modes, and the orgiastic influence of certain instruments. Rigid censorship was necessary. (Rouget 1985 includes a fascinating and provocative analysis of Plato's and Aristotle's theories of music in relation to possession trance.)

In view of the alarming social conditions today, and the glorification of drugs, rebellion, anarchy, and violence in much of today's rock music, many feel a sympathy for Plato's concern over the influence of music and the need to control and even censor it. In our real world, though, such rigidly authori-

tarian views can lead to totalitarianism. Plato sought above all to restore order and felt that respect for traditional morality and law was essential. He despised the incompetence of the untrained mob and argued for control of society by experts; his ideal military aristocracy was actually a kind of managerial meritocracy with rigorous state-controlled education and carefully managed selective breeding. Plato's views on the effects of music, and the necessity of state control over music, are much admired today in some quarters.

A modern theory of the effect of music—in this case rhythm—was put forth by Andrew Neher, a neurophysiologist. Neher (1962) proposed that ritual drumming induced possession trance by "driving" the brain's alpha waves. The reaction to this theory was curious and sociologically interesting. Many anthropologists and others embraced it quite uncritically, assuming that Neher had "proved" that drumming can cause trance and citing his study as definitive. Neher's experimental evidence and theory, however, is seriously flawed (McIver 1983; Rouget 1985).

Fundamentalist objections to rock music have variously emphasized either the music itself—especially the rhythm—or the lyrics as most to blame for its ability to pervert and corrupt. Until the discovery of backward masking, and the current concern over pornographic lyrics, it was the "beat" that got most of the blame. Fundamentalists never really devised a plausible theory to explain how the beat affected listeners, beyond linking it vaguely to hypnotism and pointing to its "savage," jungle origins. Recently the emphasis has shifted back to the words.

What About Christian Rock?

A basic division in fundamentalist views on music concerns the status of "Christian rock." Can there be such a thing, or is all rock music inherently evil? So-called Christian rock mimics secular rock music. Only the words indicate that it is "Christian." This has engendered fierce debate among fundamentalists and evangelicals.

Bob Larson, a youth-oriented Denver evangelist formerly in the music business, cautiously approves of Christian rock as a way to wean kids from the secular rock world of occultism, drugs, and sex. His primary message, though, still concerns the dangers of rock. All music, whether of Christ or Satan, has spiritual power. Even if kids don't really pay attention to the lyrics of occult rock songs, the words affect their subconscious. It is the music's beat that captures their attention, making them susceptible to the message. An "incessantly driving, pulsated beat," though not inherently evil, can, like Eastern meditative techniques, leave the mind open to invasion by "evil spirits that readily operate through such entrancing music" (Larson 1980, p. 66).

Larry Tomczak, editor of the evangelical magazine *People of Destiny,* used to be a drummer for a rock group called "The Lost Souls."[1] He does not believe that Scripture decrees any particular rhythm to be inherently evil, but

he condemns the overall immorality of secular rock. Though Christian rock can be godly, prayerful judgment is required to expose "Satan's musical conspiracy to counterfeit what God creates" (Tomczak 1986, p. 12). Tomczak has a better perspective on music history than most fundamentalist commentators. Articles in his magazine note that most musical innovations were resisted by church authorities. Martin Luther was among those who used popular folk tunes for his hymns, and many popular Christmas carols are set to what was once secular music.

Probably the best spokesman for the opposing view is televangelist Jimmy Swaggart. Swaggart considers rock and roll quite literally the Devil's music—including "Christian rock" and contemporary music. He rejects the argument that Christian rockers are "missionaries—trying to learn the language of the people they're trying to reach" (1985a, p. 5). In "copying the ways of the world" they have "vacated the premise of the Holy Spirit and succumbed to the methods used by demon spirits" (1985b, p. 50). "So-called Christian rock" is a "diabolical force undermining Christianity from within"; it is leading kids to the Devil, not to God. Swaggart—who has since been shown to have his own moral lapses—continues:

> I turn on my television set. I see a young lady who goes under the guise of being a Christian, known all over the nation, dressed in skin-tight leather pants, shaking and wiggling her hips to the beat and rhythm of the music as the strobe lights beat their patterns across the stage and the band plays the contemporary rock sound which cannot be differentiated from songs by the Grateful Dead, the Beatles, or anyone else. And you may try to tell me this is of God and that it is leading people to Christ, but I know better.

Jeff Godwin first heard about backward masking from a 1982 Dan Rather telecast. He was hooked. It is obvious to him that the backward messages could not possibly have been sung in reverse by the performers and come out so clearly. The only alternative is that the musicians deliberately recorded satanic messages and dubbed these into the music backward or that demons intervened directly. Godwin declares that, for some of the music at least, "no overdubs have been added." In other words, "the voices we hear on these songs in reverse are actually the sounds of the demons themselves!"

He offers proof of this: the testimony of Elaine, a former witch and Satan-worshiper. Elaine was herself involved in the process of planting Satan's destructive influences.

> Satan is *real!* Demons are *real!* . . . Like so many other things, the whole movement of Rock music was carefully planned and carried out by Satan and his servants from its very beginning. Rock music didn't "just happen," it was a carefully masterminded plan by none other than Satan himself. . . .
>
> I attended special ceremonies at various recording studios throughout the U.S. for the specific purpose of placing satanic blessings on the Rock music recorded. We did incantations which placed demons on *every* record and tape of rock music that was sold. At times we also called up special demons who spoke

on the recordings—the various backmasked messages. *Also,* in many of the recordings, we were ourselves recorded in the background (masked by the overall noise of the music) doing chants and incantations to summon up more demons every time one of the records or tapes is played. As the music is played, these demons are summoned into the room to afflict the person playing the music and anyone else who is listening. The purpose of all of this? *Mind control!* [Godwin 1985, p. 343-344]

In this view, rock musicians truly believe the satanic lyrics they sing—their performances have the "stamp of conviction." And they are literally possessed by demons on stage. Charles Manson really did hear secret voices on the Beatles' White Album—there really were hidden messages. And Lennon's murderer really was acting on demonic orders: John Lennon's last album contains a Yoko Ono song with reversed voices saying "Satan is coming . . . six six six. . . . We shot John Lennon!" (Godwin 1985, p. 154).

For these reasons, Godwin is grateful that some Christians at least are now aware of all this and are diligently trying to call attention to it.

> At this point, no one really knows for sure just how widespread such satanic manipulation has been in the past, and how extensive the infestation is today. We can only hope that someone has the courage to begin listening to and identifying Rock recordings so that parents can at least recognize the danger before them: the damnation of their precious childrens' souls. . . .
>
> More and more backmasked Rock abominations are being discovered every week by dedicated Christian groups and outreach ministries throughout the country. . . . What a backlog of Devil-Rock songs and albums there must be out there just waiting to be discovered! [Godwin, 1985, pp. 131, 152]

David Tame takes a somewhat different approach in *The Secret Power of Music: The Transformation of Self and Society Through Musical Energy* (1984). Tame is an esotericist, New Age spiritualist, conspiracy researcher, and Theosophist. All energy in the universe is derived from music, the fundamental mystical power, according to Tame. The ancients were fully aware of the cosmic significance of music—and of the importance of controlling it politically—but this wisdom is largely ignored now. "In fact," observes Tame (1984, p. 14), "the further back in time we look, the more people are found to have been aware of the inherent powers locked within the heart of all music and all sound." Tame yearns for the primitive and mythic vision of the entire cosmos unified by symbolic correspondences, the magical, prescientific unity sought by alchemists and astrologers.

Many fundamentalists, and others, worry about attempts to control our minds through music. Fundamentalist crusaders against the evils of rock music often use a quote they attribute to Stalin (the quote is never documented; I suspect it is apocryphal):

> If we can enslave just *one generation* in any country, that country will fall to Soviet Communism. The way to enslave that generation is by means of immorality, music, and drugs. [For instance, in Swaggart 1984, p. 6]

Mind-Control by External Agents

Fundamentalists, esotericists, paranormalists, UFOlogists, and conspiracy theorists are all worrying about mind-control by external agents—whether supernatural, extraterrestrial, or whatever. They warn of insidious attempts to change our entire value system, beliefs, and thought patterns. Jacques Vallee (1979) suggests in *Messengers of Deception: UFO Contacts and Cults* that flying saucer phenomena are manipulations of a gigantic social-conditioning conspiracy by unknown agents to prepare us for worldwide totalitarianism. Steven Jacobson (1985), in *Mind Control in the United States* includes the evils of backward masking in his section on subliminal influences of music.

The anti-backmasking crusaders and other fundamentalists take very seriously claims by rock musicians that their music is spirit- or demon-inspired. They point out that rock 'n' rollers often claim that their most spellbinding songs come to them when they are possessed—as if dictated directly by the Devil. Of course, when the same thing happens to a Christian singer—and they report that it does, that many of their best songs come to them as if dictated by a possessing spirit—then this is possession by the Holy Ghost. Likewise for possession during performances. Rock musicians become demonpossessed on stage; Christian musicians become Spirit-filled.

The ironic thing about the anti-backmasking crusade is that much of the music accused of harboring these demonic messages truly is an unhealthy influence on kids. Many of the rock musicians really are degenerate, greedy, contemptuous of authority, spoiled, and selfish, and their music may indeed reflect and encourage these attitudes. But whatever bad influence this music may have, it is the result of the words and behavior of real people, not supernatural demons.

Notes

1. Phil Tolstead is another born-again former rock musician who now preaches about the evils of rock music. Phil had a punk-rock band called "The Huns" at the University of Texas and got involved with satanism. Some of his songs were literally inspired by the Devil. He is now an evangelist with Maranatha at UCLA, witnessing to foreign students (Scimone 1986).

2. Swaggart may be referring here to four-time Grammy winner Amy Grant, whose videos are now seen on MTV as well as Christian TV shows.

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Write and Wrong: The Validity Of Graphological Analysis

How good is handwriting analysis in the prediction of specific personality traits?

Adrian Furnham

IT IS ONE of those nice but sad ironies that, as popular interest and especially commercial application of handwriting analysis, or graphology, is on the increase, scientific scrutiny of its claims remains limited and may be on the decrease. Like many of the other "ologies" that claim to be useful in describing and predicting human behavior, it has a long past, with many notable figures like Goethe speculating that somehow one may expect that a person's character is projected in the way he or she writes. The term *graphology* in fact was first used in 1871 by the French cleric Michon, who spent 30 years studying handwriting.

Since the beginning of this century there has been more and more interest in the topic, and it is difficult to go into any large bookstore without finding among the self-help, occult, or even psychology/social-science books some texts on how to analyze handwriting. These tomes tell you what factors to look at (i.e., size, slant, zone, pressure) and what traits (temperament, mental, social, work, and moral) are revealed. In fact there are schools of graphology, each with a slightly different history, approach, and "theory." However what appears missing most from the area is not a method of analysis so much as a theory of how or why individual differences are manifest in handwriting. For instance, is one to assume that personality traits are the result of genetic biological differences that predispose all social behavior, including handwriting, or is writing style, like other social behaviors, a product of complex primary, secondary, and tertiary education?

Despite the lack of any sound, illuminating, or indeed falsifiable theoretical base, there has been a great deal of interest in graphology by hard-pressed managers and administrators anxious for a valid and nonfalsifiable way of measuring the desirable and less desirable traits of employees. Dispassionate and disinterested research, however, has severely questioned the usefulness of graphological analysis.

A review of the literature shows, as ever, equivocal results. Some, albeit few, studies show extra-chance results linking handwriting to such personality traits as neuroticism, but a large number of studies reveal no clear pattern

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between graphological analysis and psychological assessment. Consider, for instance, the following conclusions taken from various studies:

1. "It was concluded that the analyst could not accurately predict personality from handwriting." This was based on a study of Vestewig, Santee, and Moss (1976) from Wright State University, who got six handwriting experts to rate 48 specimens of handwriting on 15 personality variables.

2. "No evidence was found for the validity of the graphological signs." This is from Lester, McLaughlin, and Nosal (1977), who used 16 graphological signs of extroversion to try to predict from handwriting samples the extroversion of 109 subjects whose personality test scores were known.

3. "Thus the results did not support the claim that the three handwriting measures were valid indices of extraversion." This is based on the study by Rosenthal and Lines (1978), who attempted to correlate three graphological indices with the extroversion scores of 58 students.

4. "There is thus little support here for the validity of graphological analysis." This was based on a recent study by Eysenck and Gudjonsson (1986), who employed a professional graphologist to analyze handwriting from 99 subjects and then fill out personality questionnaires as she thought would have been done by the respondents.

5. "The graphologists did not perform significantly better than a chance model." This was the conclusion of Ben-Shakhar and colleagues (1986) at the Hebrew University, who asked graphologists to judge the profession, out of eight possibilities, of 40 successful professionals.

6. "Although the literature on the topic suffers from significant methodological negligence, the general trend of findings is to suggest that graphology is not a viable assessment method." This conclusion comes from Klimoski and Rafael (1983), based at Ohio State University, after a careful review of the literature.

It is apparent that these tests of the validity of graphological analysis were very different and perhaps not entirely adequate.

Hans Eysenck, whose research in the area spans a 40-year period, and his Icelandic collaborator Gisle Gudjonsson have made the point that because there appear to be two different basic approaches to both the assessment of handwriting and personality (holistic vs. analytic), this leaves four basic types of analysis:

Holistic analysis of handwriting. This is basically impressionistic. The graphologist, using his or her experience and insight, offers a general description of the kind of personality he/she believes the handwriting discloses.

Analytic analysis of handwriting. This uses measurement of the constituents of the handwriting, such as slant, pressure, etc. These specific, objective, and tabulated measures are then converted into personality assessment on the basis of a formula or code.

Holistic analysis of personality. This too is impressionistic and may be done after an interview, when a trained psychologist offers a personality description on the basis of his/her questions, observations, and intuitions.

Analytic analysis of personality. This involves the application of psycho-

metrically assessed, reliable, and valid personality tests (questionnaires, physiological responses to a person, and the various grade scores obtained).

As a result of this fourfold classification there are quite different approaches to the evaluation of the validity of graphological analysis in the prediction of personality. These are:

1. Holistic matching, which is the impressionistic interpretation of writing matched with an impressionistic account of personality.

2. Holistic correlation, which is the impressionistic interpretation of writing correlated with a quantitative assessment of personality.

3. Analytic matching, which constitutes the measurement of the constituents of the handwriting matched with an impressionistic account of personality.

4. Analytic correlation, which is the measurement of the constituents of the handwriting correlated with a quantitative assessment of personality.

Clearly, of these four widely used methods, the final analytic correlational method is the most empirically based. A colleague (Barrie Gunter) and I decided to do a study along the lines of the analytic correlational method advocated by Hans Eysenck.

We had 64 adults of highly diverse backgrounds, ages, and professions do two things. First they copied out a text (of about 100 words) on the topic of tea onto a sheet of white unlined paper. They were each given identical, recently sharpened pencils to do the job. They also filled out the Eysenck Personality Questionnaire, which purports to measure the three fundamental dimensions of personality: extroversion-introversion, neuroticism, and psychoticism. The literature on the reliability and validity of this measure is voluminous and the dimensions it measures have been shown to relate consistently and theoretically predictably to physiological, psychopathological, cognitive, and social variables.

The personality questionnaire yields three scores for each subject. In order to do an analytic appraisal of the handwriting a number of graphological books were consulted to ascertain which factors to look at. There was no apparent agreement on which factors were most important, or indeed on what particular styles indicated. Nevertheless it was decided to select a dozen or so of the factors most commonly referred to. They were: size of writing; percentage of the page used; slant of letters; width of words; connectedness of letters with words; pressure on the page; spacing of words; regularity of crossed t's; regularity of dotted i's; where the t's are crossed; where the i's are dotted; and finally whether the subject loops letters below the line or above the line.

Each factor was rated on a 3- or 5-point scale. For example, slant was rated as 5 points (1 = extreme left, 2 = moderate left, 3 = upright, 4 = moderate right, 5 = extreme right) and pressure as 3 points (1 = slight, 2 = moderate, 3 = great).

The 64 writing specimens, all of the same passage, were then given to two independent judges, neither of whom was a graphologist, who rated each script according to the 13 factors. In order to check the reliability of their

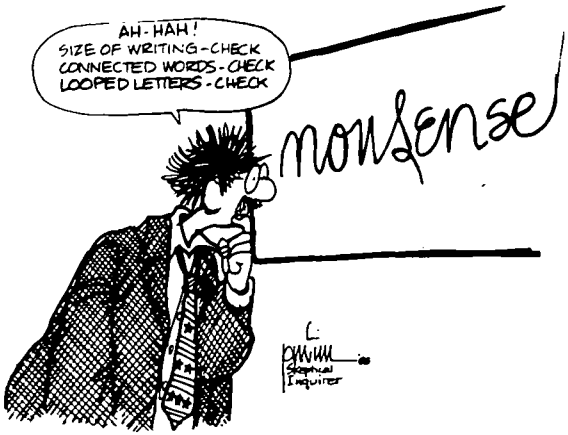
assessment a correlation coefficient was calculated. It turned out to be nearly 90 percent (5 = .89). A third judge then examined all scripts and resolved the disputed 10 percent. This meant that each subject was left with 13 different objective measures of his/her handwriting.

The whole point of the analytic correlational method is that objective and quantitative measures of both personality and handwriting are correlated. More than 70 correlations were computed. Less than 6 percent proved significant—one with extroversion and three with neuroticism, indicating that neurotics tended to have small handwriting, with a left slant and consistently dotted i's.

Despite numerous other statistical evaluations, including analysis of variance, multiple regression, and discriminant analysis, none of the results proved significant. Thus we were forced to conclude, as others had done before us, that graphological analysis was invalid. In fact we concluded thus: "Even if graphological analyses were valid, the *theoretical* basis of the method appears weak, nonexplicit, and nonparsimonious. Furthermore, it is unclear why it should be used if clearly valid and reliable measures exist to measure the same thing (i.e., personality) more cheaply, accurately, and efficiently. Perhaps one should be forced to conclude, rather uncharacteristically for researchers, that no further work needs to be done in the field" (Furnham and Gunter 1987, p. 434).

It would be wise to anticipate criticisms of this relatively small study and to consider possible responses:

• The 13 variables missed out on all or some of the critically important graphological variables. Indeed, I had correspondence with a graphological consultant who suggested both *speed* of handwriting (supposedly a determinant of naturalness, genuineness, and spontaneity in personality) and consistency of height and slant (supposedly an index of balance and control in life) were crucial. The consultant did not dispute the importance of other factors. This may well have been a valued criticism if there has been an



agreed-upon set of criteria. I happened to use a number of text books and to attempt some consensus.

• Experienced graphologists would have come to different conclusions. The point of this study was to derive reliable, objective, numeric indices of handwriting, not impressionistic accounts. Graphologists could have been used, but the crucial factor was the reliability of the judge. This was in fact achieved, and hence meant experienced graphological analysis was rendered redundant.

• Graphology does not relate to the three major variables predicted, namely, extroversion, neuroticism, and psychoticism. This is simply false, as it most frequently purports to do just this.

• The personality test was at fault; whereas graphology does predict personality, psychometricized questionnaires do not. While the absolute validity of nearly all (and particularly some) questionnaires remains in doubt, there is more than sufficient empirical evidence for the validity of the test used here.

Many graphologists consider psychological evaluation of their "trade" a threat. Graphologists, it seems, tend to regard psychological research as cynical rather than—as I believe it actually is—skeptical. Research into the validity of graphology has, for all its faults, appeared to be disinterested. But even if graphology had merits and was valid, it would remain nothing less than a technique in search of a theory.

Ben-Shaktar and his Israeli colleagues (1986, p. 652) have thoughtfully concluded thus:

> 1. Although it would not be surprising if it were found that sloppy handwriting characterized sloppy writers, stylized calligraphy indicated some artistic flair, and bold, energetic people had bold, energetic handwriting, there is no reason to believe that traits such as honesty, insight, leadership, responsibility, warmth, and promiscuity find any kind of expression in graphological features. Some may have no somatic expression in graphological features. Some may have no somatic expression at all. Indeed, if a correspondence were to be empirically found between graphological features and such traits, it would be a major theoretical challenge to account for it.
>
> 2. There are not enough constraints in graphological analysis, and the very richness of handwriting can be its downfall. Unless the graphologist makes firm commitments to the nature of the correspondence between handwriting and personality, one can find ad hoc corroboration for any claim.
>
> 3. The a priori intuitions supporting graphology listed above operate on a much wider range of texts than those graphologists find acceptable. As graphologists practice their craft, it appears that from a graphological viewpoint, handwriting—rather than being a robust and stable form of expressive behavior—is actually extremely sensitive to extraneous influences that have nothing to do with personality (e.g., whether the script is copied or not, or the paper lined or not).
>
> 4. It is noteworthy that most graphologists decline to predict the sex of the writer from handwriting, although even lay people can diagnose a writer's sex from handwriting correctly about 70% of the time. They explain this by insisting that handwriting only reveals psychological, rather than biological, gender. Al-

though common sense would agree that some women are masculine and some men are effeminate, it would be somewhat perverse to argue against the presumption that most women must be feminine and most men masculine. Could the graphologists simply be reluctant to predict so readily verifiable—or falsifiable—a variable?

Readers of this journal will know of the techniques of cold reading and be able to understand why graphology appears to work and why so many (otherwise intelligent) laypeople believe in it. The growth of graphology may be due to the inability of empirical scientists to discover or invent a simple, single, robust, and predictive measure of personality. But one cannot allow graphologists to fill this void, given that from any objective and dispassionate evaluation of their wares, graphology is quite simply invalid.

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A bibliography of books and articles on graphology is available upon request from the CSICOP office in Buffalo. A session on graphology will be presented at the 1988 CSICOP Conference in Chicago in November.—ED.

The Intellectual Revolt Against Science

Feyerabend, Roszak, and other critics call for an alternative science that would synthesize science and other forms of consciousness. But such an alternative would no longer be science.

J. W. Grove

I come to cast off Bacon, Locke and Newton.

—William Blake (1757-1827)

THE GROUNDS for the intellectual revolt against science, from the traditional "humanistic" to the contemporary philosophical and sociological, can be summarily reduced to three. First, that science "holds a monopoly on the totality of all phenomena occurring in nature" (Nowotny 1979, p. 16). That is to say, scientists legislate what phenomena are to be considered "natural." For example, hadrons and gene transference are natural phenomena; extrasensory perceptions are not. Second, that science "holds an increasingly powerful monopoly of access to the investigation of nature." The world can be investigated only by (increasingly sophisticated) techniques and instrumentation that are inaccessible to the nonscientist. This implies that science excludes all those who seek "communion with nature" through direct sensory experience and who reject the separation that science makes between the observer and that which is observed. Nowotny's use of the word *monopoly* in both these instances indicates the critics' sense that science is becoming increasingly successful in excluding serious consideration of any world-view other than its own.

The third ground (which Nowotny does not mention) is confined to followers of the idealist tradition in philosophy. It is that modern science (often referred to as "science since Galileo") is defective in its lack of a "critical reflexivity", that it fails to reflect on its own foundations, to accept that it deals only with the surface of things and not with the underlying essential reality, and that this is a necessary consequence of its method. This

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argument is, of course, intended to restore the hegemony of metaphysics which that discipline so long enjoyed, but it has some practical consequences. One of the more interesting of these is that it gives support to the ideas of many contemporary sociologists (and some philosophers) of science who wish to persuade us that science is nothing but a system of beliefs conveying a set of ideas that are internally consistent, that help to make sense of the world (at least for scientists), but that bear no more knowable relation to reality than does any traditional mythology If this sounds far-fetched, I would refer the reader to a symposium on "Witchcraft and the Epistemology of Science," held as part of the annual meeting of the British Association for the Advancement of Science in 1975, in the course of which a distinguished professor of sociology drew attention to "the close similarities between the contemporary practice of science and the practice of witchcraft in tribal societies."

The aim of the critics is quite explicitly to cut science down to size—exemplified in the philosopher Paul Feyerabend's deliberately provocative question, "What's so great about science?" (Feyerabend 1978, p. 73). Yet most of them seek not merely to refute the scientistic pretensions that are sometimes made on its behalf (for example, that it is the sole source of "reliable" understanding of the world), but to demystify it, and by so doing to change it. Feyerabend is a leading exponent of this policy. His recent work constitutes a sustained attack on the foundations of science (all three of the above-mentioned objections are present in it), making use of an elaborate set of ingenious arguments for "epistemological anarchy"—for a scientific methodology in which "anything goes," in which science would be open to any and all kinds of influences and to all modes of thought and inquiry. His *Against Method* (1975) and *Science in a Free Society* (1978) are full of epistemological and practical claims: There is no idea, however ancient or absurd, that is not capable of improving our knowledge; political interference to force science to admit alternatives is justified; the scientific world-view has triumphed because it has been given the *imprimatur* of the state; it is closer to myth than the practitioners of science are willing to admit; scientific rationality is only one kind, and in many respects an inferior kind, of rationality; science is anti-democratic because (among other things), while citizens are free to choose their religion, or to reject all religions, they are not free to accept or reject science; dissenters to "established" science are routinely suppressed, therefore laypersons should "supervise" science; and so forth.

The transfiguration of science was a continuing theme in the work of the Frankfurt School and especially in the writings of Herbert Marcuse, whose claim was that "classical" or "Aristotelian" science was quite different from modern science in that it was metaphysical, concerned with eternal truths, accepting of and at one with nature, and inherently liberating, whereas modern science is anti-metaphysical, concerned only with measurement and successful prediction, wholly instrumental in its approach to nature, and directed toward domination. It was never made clear, however, whether a "transfigured" science meant a possible change in the nature of science itself, or if it simply

referred to the way science as it exists would be put to use in a transformed society. Contemporary counter-movements to science have done nothing to remove this ambiguity, as indeed the various terms that are used make clear: a "new" science, a "liberated" science, an "alternative" science, a "transformed" science, and (more recently) a "feminist" science. Different critics argue for different solutions: science substantially as it is, but undertaken in a more "humane" spirit; a science more open to ideas and influences that it now excludes; a transformed science operating within the confines of existing society; or a transformed science that would result from a radical restructuring of social institutions.

The classic historical case of an alternative science is that of *Naturphilosophie,* which flourished in the early decades of the nineteenth century. It was a true alternative in that it constituted a coherent system of ideas and principles, in effect an alternative world-view. Nature philosophy exerted an intellectual influence on many humanists, including the English Romantics, especially Samuel Taylor Coleridge. More important, it attracted a number of prominent scientists, including Hans Oersted (the discoverer of electromagnetism) in physics; Lorenz Oken, Richard Owen, Johannes Müller, and (in his early years) Louis Agassiz in biology; and Humphry Davy in chemistry. It was associated originally with the philosopher Schelling (1775-1854), a confidant of the young Hegel, and was expounded by him in two principal works: *Ideas Toward a Philosophy of Nature* in 1797, and *First Outline of a Philosophy of Nature* in 1799. The core of Schelling's doctrine was that objective scientific knowledge is possible but can be obtained only by means of a philosophical investigation of what can be known a priori. As one commentator puts it (Knight 1975), the nature philosophers believed that scientific discoveries could be made from an armchair, simply by taking thought. This was also Hegel's view. As is well known, Hegel "proved" by pure reason that no more than seven planets could exist just when astronomers were on the point of showing, by observation, that he was wrong. This "quixotic attack of the young Hegel [on science] . . . and his swift defeat at the hands of the scientists" has been described by Polanyi (1958, p. 153) as one of the great formative experiences of modern science.

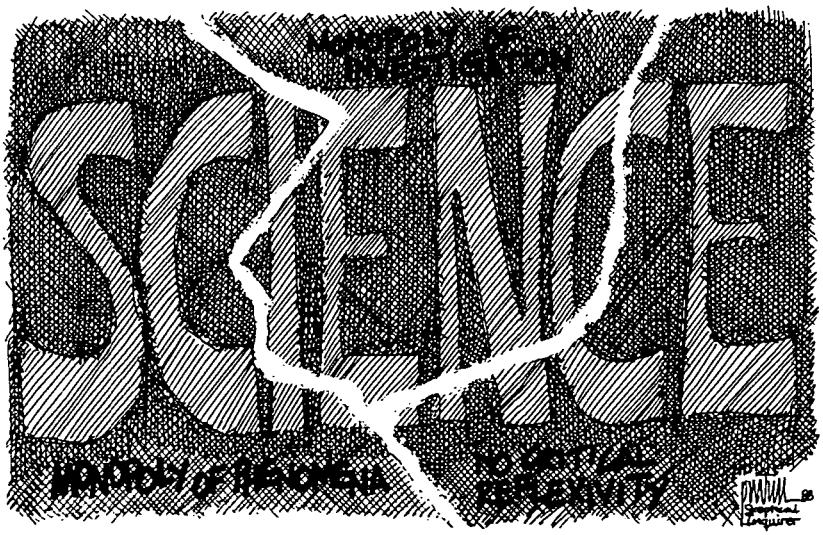
The greatest philosopher of nature in the Western world, Goethe (1749-1832), was not an adherent of *Naturphilosophie,* though he was to some degree influenced by it; nor was he even a philosopher in the professional sense. He was a man who approached nature and studied it with the eyes and mind of a poet: the archetype humanist-scientist sought by many of today's critics. He appears to us not simply as a man of letters who happened also to be a naturalist. His poetry, novels, and plays were suffused with his peculiar understanding of, and reverence for nature; his treatises and essays on botany, geology, meteorology, physiology, and many other subjects, and the observations and experiments on which they were based, were shaped by his poetic sensibilities. His science and his letters stood in a completely symbiotic relation. It is easy to see why Goethe-as-scientist has for so long fascinated opponents of science-as-it-is. It has been well said (Gillispie 1960) that

Goethe's "nature" was not objectively analyzed by him but "subjectively penetrated." Nature had to be comprehended whole. The central core of *Naturphilosophie* was the proposition that there is a single unifying principle underlying the whole of nature that brings all its parts into harmony. Goethe wished to know what nature contains in its innermost depths. The observer is not detached from nature; he is part of it. "That is the trouble with modern physics," Goethe wrote, "it wants to perceive nature only through artificial instruments. Man himself, using his healthy senses, is the greatest and most exact physical instrument which there can be " And again:

> Out of the largest and smallest things, accessible to men only through artificial means, emerges the metaphysics of phenomena—the region where metaphysics and natural history overlap is the favorite dwelling place of the serious and true student.

The uncluttered senses where possible. Instruments when necessary. Then the application of intuition.

One of the gurus of the media-styled "countercultural revolution" of the 1960s, Theodore Roszak, is reported as having said (Chedd 1971) that "the great cultural project of the next few generations [would be] to produce a synthesis between science and other modes of consciousness, which include mystical traditions, aesthetic experiences and many others." In his principal writings Roszak (1968; 1972) toyed nostalgically with the Hermetic, Cabbalistic, and Neo-Platonic traditions, which existed alongside science as it emerged from the Renaissance, implying that science lost much that was important when it cut itself free from them. To the extent today that we are scientific, he said, we are not truly human. His heroes, not surprisingly, were William Blake, Goethe, and the Romantic poets; his goal, the "visionary experience"; his teachers, the shaman and "the magic of the environment."



A dissenting scientist, a chemist, Thomas Blackburn, writing in the journal *Science* in 1971, argued that the salient feature of the counter culture was its "epistemology of direct sensuous experience, subjectivity, and respect for intuition—especially intuitive knowledge based on a 'naive' openness to nature and to other people." His contention (Blackburn 1971) was that science must change because it had been shown to be incomplete; incomplete because it failed to accommodate to this epistemological mode. He asserted that there were three "tenets of counter-cultural thought that [held] great promise for the enrichment of scientific practice and, perhaps, for the improvement of scientific morality." These were: that the "most reliable and effective knowing" follows from direct and open confrontation with phenomena; that since the self and the environment are inextricable, "one can understand his surroundings by being sensitive to his own reactions to them"; and that "because knowledge of nature is, in this way, equally open to all, the expert is highly suspect."

What then—realistically—are the prospects for an alternative science that would "synthesize" science and other modes of consciousness (Roszak) or "accommodate" it to a different epistemological mode (Blackburn)? The answer is none—for such an alternative would no longer be science. The practice of science at its best, as many eminent scientists have testified, demands vision, intuition, a respect for the natural world, a sense of the wholeness of things, even a sense of mystery; all things that the "humanist" values. But the "commonsense theory" of knowledge, which is the basis of Blackburn's three tenets of countercultural thought—the theory that nature is an open book that can be read by all who submit to it—has long since been rejected by science, and the success of science has depended upon this rejection.

At the root of the scientific approach to understanding lies what the biologist Jacques Monod once called "the most powerful idea ever to have emerged in the nöosphere": the idea of *objective knowledge*. Science postulates the existence of a world about which it is possible to have *public, directly communicable* knowledge. This must be expressed in precise, unambiguous language. The ineffable, the mystical, the sensual cannot be expressed unambiguously; any attempt to do this would destroy what the speaker or writer is seeking to convey. The mystic may say, "Under my guidance you may attain to a knowledge of the inner—or true—meaning of things, such as I possess"; but this knowledge is, and must remain, essentially private to the experiencing person. The scientist assumes that the world that he or she experiences is *exactly the same world* as other scientists experience. The language of the poet, or the visual "language" of the artist and the sculptor, is *expressive*. It seeks to convey, and perhaps release, certain feelings and emotions and to communicate ideas through them. The language of the scientist is *argumentative*.

The public character of science and the precision with which its propositions are expressed are prerequisites for open inquiry and for the criticizability (and criticism) of ideas. Yet science is also a *disciplined* activity. It is

necessary for scientists to agree on many things, to take much for granted, even if only provisionally. It is necessary because science is a collective enterprise. Progress in science would be impossible if everyone "did their own thing" (as Feyerabend seems to recommend). It depends, rather, on many people doing the same thing. There is conflict in science (especially of ideas), but there must be agreement too. As John Ziman (1978, p. 43) reminds us, the assumption that all observers are equivalent "is not merely a basic principle of Einstein's theory of special relativity; it is the foundation stone of all science."

Finally, the much criticized "abstractness" of science is the core of its strength. Science is speculative, conjectural, but it is nevertheless firmly rooted in an empirical base. The Greeks were, on the whole, more interested in abstract speculation than they were in empirical evidence. Other civilizations—early Islam, for example—placed great emphasis on accurate observation and experiment, but gave little attention to the development of theory. It was the major achievement of the scientific revolution, begun by men like Galileo, to have succeeded in bringing together abstract theorizing and empirical inquiry into a single undertaking. It is this peculiar conjunction of abstract speculation with empiricism that distinguishes science from myth and from purely empirical (or almost purely empirical) enterprises like alchemy. Science is conjecture checked by evidence; but conjecture is paramount A skepticism about what appears immediately to be the case and an imagining of the ways the world may be: these are the hallmarks of science. Both the scientist and the "humanist" deal in imagined worlds. The difference between them is that, as Sir Peter Medawar once said, "the business of science consists in trying to find out if [the scientist's] imagined world is anything like the real one. If it is not, then we have to think again."

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Book Reviews

Seeing Faces on Mars

The Monuments of Mars: A City on the Edge of Forever. By Richard C. Hoagland. North Atlantic Books, Berkeley, Calif., 1986. 350 pp. Cloth, $25. Paper, $14.95.

The Face on Mars: Evidence for a Lost Civilization? Edited by Randolfo Rafael Pozos. Chicago Review Press, Chicago, Ill. 155 pp. Paper $12.95.

David Morrison

IN 1976 FOUR Viking spacecraft began a global survey of the planet Mars. While two landers settled to the surface in the plains of Chyrse and Utopia to examine their surroundings and carry out a complex search for microorganisms in the red Martian soil, two Viking orbiters undertook a comprehensive photographic survey of the entire planet. Five years later, this survey had mapped all of Mars at a resolution of 200 meters, with large areas also imaged at higher resolutions, down to 10 meters. A world of extraordinary interest to the geologist was revealed: volcanoes and canyons, polar caps and great sand seas, cracks and strange "patterned ground," and even the remains of extensive water-courses from billions of years ago. While many of these landforms are familiar to us, Mars also has unique geological features, many of them carved by sandstorms on this desiccated world where the common terrestrial erosional agents, water and ice, are largely absent. Mars is an extraordinary planet of great scientific interest. It is also a planet with sensationalist overtones, dating back a century to the canals of Percival Lowell and the Martian invaders of H. G. Wells. It is in the tradition of Lowell's illusory canals that a new generation of fringe scholars and popular writers is enthusiastically publicizing the mysterious "face on Mars."

The Mars face is a squarish low hill or mesa about one mile across located in a region known as Cydonia. When seen from above under oblique late-afternoon

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lighting, the eroded top of this hill bears a striking resemblance to a human face, with an eye socket, a nose, a mouth, and a chin. The best Viking images (there are two, from VO-1 orbits 35 and 70) achieve resolutions of about 100 meters. The few photos of this region taken under morning lighting have substantially lower resolution and cannot contribute to improving our understanding of the feature. This "face" is part of an extensive area of isolated wind-eroded hills, many of which have shapes that would be unusual on Earth, often in the form of rough pyramids with three, four, or five sides. A similar group of wind-carved pyramidal hills is found in a region of Mars called Elysium. The face was spotted by Viking scientists shortly after it was photographed, and the image was released to the press as a sort of joke—an example of the tendency to recognize apparently anthropomorphic features in an exceedingly complex and alien landscape.

Now that the issue has blown up, some people in the Jet Propulsion Laboratory's Public Information Office regret that the image of the face was ever called to the attention of the press. Even more regrettable in retrospect is the response given by Viking Project Scientist Gerry Soffen when some members of the press corps began to take the face image seriously immediately after its release. To dismiss their concerns, Soffen told the press that the same area had been rephotographed a few hours later under different lighting conditions and that the apparent face had disappeared. While plausible, this story was untrue. A few hours after the original picture was taken, the face was on the night side of the planet and could not have been seen; in fact, the area was not rephotographed for another month (35 orbits later). Such carelessness provides chaff to fuel paranoid fantasies about government coverups.

It is a dozen years since Viking photographed the face on Mars. Up until 1979, no one gave it much thought. Then two engineers, Vincent DePietro and Greg Molenaar, "rediscovered" the image in NASA archives; after experimenting with some image enhancement techniques, they privately published a monograph called "Unusual Martian Surface Features" (1980), calling attention to the face and one of the nearby "pyramids." In 1983 the mantle of research on these Martian enigmas was assumed by science journalist Richard C. Hoagland. Hoagland, a young man of great energy and overwhelming ego, has since made these features largely his own vehicle, organizing a wide-ranging "research" group, writing *The Monuments of Mars,* and actively promoting his ideas on radio talk-shows and the lecture circuit. I first learned of this renewed interest in 1984, from Hoagland's partner, former astronaut and planetary scientist Brian T. O'Leary. I met O'Leary, bleary-eyed but bubbling, on a plane returning from Egypt, where he had gone to see the pyramids of Giza for himself, to compare them with their Martian counterparts. Among others involved in this effort are David Webb, member of the National Commission on Space and co-founder with Hoagland and O'Leary of "The Mars Project," as they call their research effort, and anthropologist Randolfo Pozos, who edited *The Face on Mars.*

In addition to his role as organizer and promoter, Hoagland has developed a bizarre collection of theories to "explain" the Martian enigmas. To his eyes, the Viking photos of Cydonia show far more than a schematic face and a few eroded pyramids. In the scattered hills of the region he identifies a ruined "city," a "fort," a "honeycomb" complex of rooms, and a variety of so-called astronomical alignments of these and other topographical features that convince him that this entire region of Mars is the product of intelligent construction efforts on a gigantic scale. But this is only the beginning. Hoagland notes that the alignment of the city and the face is

meaningless today, but he suggests that it might have pointed toward the solstice sunrise half a million years ago, permitting him to date these construction projects. Since the face is undeniably human in form, he goes on to paint a variety of remarkable scenarios: that the indigenous Martians had experienced a parallel evolution so that they actually looked like terrestrial humans; that the face was the product of aliens from beyond the solar system who built a human form on Mars as a signal to us (like the black lunar monolith in *2001*); or that the face was built by spacefarers from a previously unknown human civilization that had traveled to Mars from Earth half a million years ago. Many others (including this reviewer) can see nothing at all artifical-looking about Hoagland's city and fort and supposed alignments. But this does not deter him in his quest. Nor is he bothered by the fact that the "honeycomb" was later shown by his own colleagues to be an artifact of computer image processing. With classic pseudoscientific reasoning, he overlooks the weakness in his data and instead argues that somehow the totality of the evidence demands extraordinary explanations, no matter how flawed any individual argument may be.

The Monuments of Mars is written as a personal account of Richard Hoagland's odyssey of discovery as he, almost single-handedly, deciphers the great mystery of Mars. His partners are given short shrift: a passing mention of Webb and little more of O'Leary. But we are treated to the mind processes and adventures of Richard Hoagland in great detail: his brilliant flashes of insight, his rejection by uncomprehending scientists, his dramatic confrontation with Carl Sagan in the Great Rotunda of the National Academy of Sciences. To turn what is basically a rather short story into a full-length book, Hoagland laces his account with the wildest leaps of theory and philosophy, including a fair dose of speculation about prehistoric contacts between humans and Martians in the manner of von Däniken. Of course, the Mars face is a sphinx, and in its association with surrounding pyramids it becomes inextricably intertwined with ancient Egypt and the mysteries of the Egyptian pyramids. Actually, Hoagland never claims that any of this nonsense is true; he is forever interrupting himself to point out that these ideas are poorly founded, speculative, or incredible, before plunging back into his world of make-believe. The whole thing is written in a breathless, choppy style with more two-word paragraphs, exclamation points, phrases in block capitals, and ellipses than this reviewer has ever before suffered through in a book.

In reading *The Monuments of Mars,* I frequently asked myself how much of the material was factually accurate. One has the vaguely uneasy feeling that Hoagland frequently slips back and forth between fact and fiction in his writing. In one example, Hoagland (pp. 139-141) describes in detail a 1984 interview with Merton Davies, a planetary scientist and imaging expert at the Rand Corporation. Twice in his account of the meeting, Hoagland refers to Davies's puffing on his pipe; but I know Davies well, and he is not (and was not) a pipe smoker! It is a small point, but it raises questions about the veracity of other material in the book.

Perhaps a word is in order about Hoagland himself. Born in 1946 and largely self-educated, he has had an eclectic career, ranging from museum curator to journalist to public relations agent. His vita is filled with such ambiguous titles as "consultant" and "advisor" (to organizations that include NASA and CBS). I first met him at the time of the Voyager encounters with Jupiter and Saturn (1979-1981), when he appeared in the press corps initially as a free-lance writer, and later as a representative of Cable News Network. He impressed me then with his enthusiasm, but it was equally clear that he remained an outsider, lacking the respect of the professional science journalists. He claims credit (with Eric Burgess and Carl Sagan)

for devising the Pioneer 10 interstellar message plaque, but for some reason Sagan and Burgess, while crediting each other, always neglect to mention Hoagland's contribution in their versions of this story. Hoagland is also known for a theory that there is life on Jupiter's moon Europa and also for stories about a mysterious "thing in the ring" supposedly discovered by Voyager at Saturn. Apparently he has devoted himself to the Mars Project from 1983 to the present.

Hoagland is also the star of Randolfo Pozos's book, *The Face on Mars,* which is a detailed account of the workings of the Mars Project over just three months in early 1984. (A more detailed review of it appeared in the Spring 1987 *SI.*) Most of the volume consists of chronological, verbatim transcripts of a "computer conference" involving Hoagland, Pozos, and half a dozen other participants at widely distributed terminals. More readable than Hoagland's frenetic writing in *Monuments,* these transcripts provide a fascinating record of a group of well-meaning but hopelessly confused individuals flirting with questions of cosmic significance, prodded along by Hoagland's enthusiasm and his penchant for speculation. There are some amusing moments, as when one of the participants looks at the Viking prints and identifies literally dozens of additional eroded faces, to the embarrassment of the other participants. There is also the problem of one member of the conference who is a young-Earth creationist and disputes Hoagland's purported evidence that the Martian artifacts are hundreds of thousands of years old. Unfortunately, the material is treated with deadly (and deadening) seriousness by author Pozos, who seems to feel that he is a participant in a history-making event of the first order—including the definition of a new discipline of extraterrestrial anthropology.

Since the actual data on the face and nearby pyramids are so sparse, both books concern themselves at some length with issues of image processing. The Viking pictures were obtained with a TV-type camera, translated into digital form, and transmitted back to Earth for reconstruction from individual picture elements (pixels). Each image has dimensions of 1,182 by 1,056 pixels, which means that the full resolution is displayed in a 5-inch photographic print. Yet Hoagland complains at great length about having to work with these small-format prints and seems to think that 16-inch enlargements contain much more information. Others in the Mars Project used various computer-enhancement techniques, one of which involved dividing each original pixel into nine parts and reprocessing the image as if it contained three times the original resolution. Such approaches may improve the images cosmetically, but they cannot generate information that was not present in the original, a fact that these authors consistently overlook. In *Monuments,* Hoagland further confuses things by introducing a three-dimensional computer model that is *consistent with,* but extends, the two available photos of the face. He then repeatedly substitutes images of the model for the original data, giving a false impression of the information actually available.

Confused as they are, it seems that both of these books represent just the saner fraction of the speculation on ancient Martian civilizations inspired by the face. Pozos notes that the transcripts he published cover the first part of a three-part computer conference, in which the unpublished second and third stages dealt much more with "radical speculation" about "the origin of life, from different theological, philosophical, and scientific viewpoints." And in his Publisher's Foreword to *The Monuments of Mars,* Richard Grossinger notes with admiration that Hoagland's Mars researches have been carried out at "the risk of health, reputation, and finances," but he also tells us that he has been "a very critical editor," insisting that Hoagland's more conjectural ideas be toned down or eliminated. Given the published

content of these two books, this reviewer has a hard time imagining the more "radical" material that has been omitted from them!

Is there a face on Mars? Certainly yes, and quite a striking one when properly illuminated—very much in the class with various "great stone faces," "sleeping Indians," and the like, identified in the hills and mountains of our own planet. Are there pyramids on Mars? Again yes; rough pyramidal mesas seem to be a characteristic feature of the wind-eroded hills in parts of Mars, such as Elysium and Cydonea. But do these represent, as these books claim, one of the most important discoveries in human history, discoveries destined to alter fundamentally our conceptions not only of Mars but of the origin and evolution of life and the nature of human consciousness? I seriously doubt it, and I regret seeing such specious arguments used to justify our space program or to urge additional missions to Mars. Perhaps the most optimistic note I can draw from a study of these two books is that Hoagland writes so poorly that I cannot imagine anyone actually reading his book (or the transcripts of his thinking in Pozos's book) who was not required to do so. •

Haunted or Hysterical in West Pittston?

The Haunted. By Robert Curran. St. Martin's Press, New York, 1988. 261 pp. Cloth. $16.95.

Mary Beth Gehrman

AS I BOARDED a plane headed for the beaches of sunny southern Florida, I figured that, at worst, I would find within the pages of *The Haunted* a few hours' light entertainment. I was wrong.

This book, subtitled *One Family's Nightmare* and billed as a "harrowing true story," would not even make good fiction.

It is the tale of Jack and Janet Smurl and their four daughters; just a normal family from West Pittston, Pennsylvania, who were besieged by "spirits" and then by reporters from all over the United States when in August 1986 they told the Associated Press of a demonic infestation with a twist: supernatural rape (see *SI,* Winter 1986/87). At that time the family reported, in addition to this dramatic revelation, a number of your more mundane paranormal occurrences: the stench of smoke and rotten meat; pig grunts, hoofbeats, and blood-curdling screams and moans; doors opening and closing by themselves; levitations; a banging noise in the walls; formless "ghostly glows" traveling about; and so on. Their 75-pound German shepherd was reportedly thrown against the wall by an invisible force, and 17-year-old Dawn Smurl gave several different accounts of her experiences, the most memorable of which was the time she was "attacked and bruised" by a demon in the shower.

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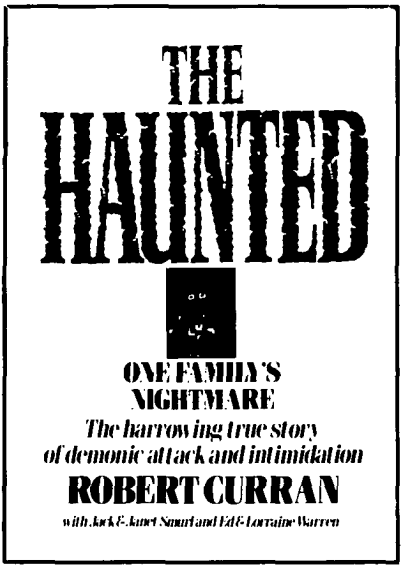

Written by *Scrantonian Times* reporter Robert Curran, *The Haunted* would probably never have come about without the intervention of Ed and Lorraine Warren, "demonologists" from Monroe, Connecticut, who helped to make famous a sleepy little town on Long Island with their part in the publication of another "true story" and the subsequent release of movies based on it called *The Amityville Horror* and *Amityville II.*

Shortly after the films were released, the Warrens' veracity was completely discredited when William Weber, a key figure in the Amityville case, admitted that he and George and Kathy Lutz, the owners of the Amityville house, had "created this horror story over many bottles of wine."

I suspect *The Haunted* may have had a similar origin, though Curran makes several lame attempts at establishing the professional credibility of the Warrens. The author's note contains the following semi-disclaimer: "Certain minor liberties have been taken with the chronology of events, and some scenes and dialogue have been recreated in a dramatic fashion."

Liberties? Definitely. Dramatic? Hardly.

In September 1986, Barry Karr and I were sent to West Pittston to investigate the Smurl case because the CSICOP offices were being deluged with calls from reporters who wanted an objective opinion. Although the Warrens had suddenly and unceremoniously closed the house to skeptical investigators (indeed, to anyone outside their own "team of psychic researchers"), we did manage to uncover many facts surrounding the case. Curran chose to disregard these facts, if he ever bothered to learn them at all.

For a fleeting moment when I encountered a paragraph on page 2 about the sporadic problems caused by the abandoned coal mines that honeycomb the area, I did think that perhaps this book would provide a somewhat balanced treatment of the events that had allegedly occurred. CSICOP investigators had originally hypothesized that these might be a cause of some of the unusual experiences the Smurls reported. Curran's lack of objectivity rushes back from its short hiatus, however, when he notes that the frequent cave-ins of a few decades ago "may have caused demons to rise up from ground used for satanic purposes."

Thus Curran's vivid imagination rears its overstimulated head from the beginning. "Long before the Smurls arrived," he writes, "there were rumors about the duplex. Residents who wish to be unnamed say that for decades there have been stories. . . . These people even mention that occasionally the police were called in to investigate odd occurrences, though the police have no such record of any investigation."

In many extensive interviews, Karr and I did not find a single person, unnamed or otherwise, who would corroborate this claim. In fact, Steve Ellis, who lived in the house for almost two decades before selling it to the Smurls in 1972, adamantly denied that he had ever experienced anything untoward there. In any event, the implication that demons from hell have nothing better to do with their time than dig

through police records, presumably so that there will be no way for humans to substantiate their existence, is more than a little bit ludicrous.

Contrary to original reports, Curran states that the family had unusual problems virtually from the moment they moved in, and every minor incident of the past 17 years is magnified until it becomes a catastrophe of apocalyptic proportions. Artistic license gives Curran the opportunity for boundless retrospective theorizing, and facile, a priori rejection of alternative explanations occurs throughout. Empty lawn chairs rocked on the front porch "as if invisible inhabitants were sitting in them," and scratches in a newly installed sink appeared "as if the talons of some frenzied beast had clawed at the porcelain." When the television burst into flames, bad wiring in the decades-old house was not suspected. When copper pipes leaked, it was seen as a "mysterious occurrence." When a "foul stench" filled the air, the open sewer pipe at the end of the street was not considered.

Exaggeration, as any moviegoer knows, is the key to success in the horror biz, and filmdom has made many "paranormal" events seem almost commonplace to the collective American psyche. But the Smurls' story features the unique and, perhaps coincidentally, highly marketable component of rape by a succubus.

In 1986, Jack told reporters that he had had sexual intercourse with a grotesque female demon "at least a dozen times." In the book, only two of these encounters are described, though we do learn that the evil spirit kept its sex life interesting by teasing Janet and *nearly* raping Dawn as well.

In a graphic interview recounted in *The Haunted,* Curran, in what appears to be a brief bout with lucidity, asked Jack what had convinced him that he wasn't having a nightmare when he was visited by the firm-bodied white hag. Jack's answer? A succinct, "Her scales."

Jack's testimony, of course, remained uncorroborated, since his wife was asleep downstairs during the first attack and was incapacitated by a "deep psychic sleep" during the second, and since *before* he told Janet what had happened Jack washed off his body all traces of the "sticky substance" the creature emitted. However, in an odd coincidence on which I will comment no further, he reported that his oldest daughter, Dawn, shocked him the morning following the first incident by relating a dream she'd had in which her father was being sexually molested by a "horribly ugly woman."

Are the Smurls sincere in their beliefs? It is difficult to say. They are a very religious family, but the Catholic church has steadfastly refused to become involved with their case from the beginning. It is not inconceivable that their strong belief in a higher power led them to jump to conclusions and that the Smurls' fear fed on itself until they actually became terrified of every little bump in the night. Curran, of course, continually portrays them as skeptical. He relates one interview in which Jack says, "The first thing the average person does is *reject* the idea that he's dealing with the supernatural. . . . No, I didn't reject it. I just hoped some other explanation would come along. . . . No other explanation was possible. Not a one."

Passages like this are obviously supposed to lead readers who may still have a brain cell or two clogged with rationality to the belief that all the more prosaic explanations had been thoughtfully considered, and thus to the conclusion that the only plausible reason for the Smurls' problems was that the family was indeed plagued by demons.

Whether or not the Smurls are truly convinced that they were being haunted (or continue to be—their story becomes nebulous at this point) is a matter for speculation, but it is hard to conceive of a supposedly sophisticated, objective, and (as far as

I know, at least until now) credible reporter like Curran taking their story seriously, given the complete lack of any empirical or physical evidence to support it. (Mention has been made of videotapes, though thus far none have been produced—in any sense of the word.) This becomes even harder to envision when we encounter lines like: "[Janet] wondered if it was illegal to sniff the big red plastic bottle of Era Plus, her laundry detergent of choice and one that she found pleasant to smell."

Curran continually goes to such ridiculously corny lengths to assure the reader that the Smurls are just simple, salt-of-the-earth folk who live in a "model working-class neighborhood: clean, well-kept, American flags vivid in the light of national holidays." Jack and Janet are portrayed as traditional, deeply religious Catholics who strenuously uphold the work ethic and devote all their energy to civic activities and to raising four daughters who, if we are to accept the maudlin picture painted by Curran, make the Brady Bunch look like the Manson family. Curran carefully notes that Jack and Janet never had anything to do with the politically rebellious, sexually promiscuous, hallucinogen-happy hippies of their generation or with "troublemakers and chronic complainers" of any sort. He even goes so far as to tell us that the family's underwear (I kid you not) was "nothing fancy; just the kind you bought at Penney's and Sears."

Amid all this superfluous trivia, Curran fails to mention one rather glaringly significant detail—Jack Smurl's brain surgery for "water on the brain" in 1983. This is by no means unimportant, since much of the "demonic" activity originally reported focused on Jack, raising the question of whether group hysteria stemming from the delusions of a central figure could be playing a part in this case.

But, if it is difficult to fathom Curran believing his own story, it is almost impossible to imagine this seasoned writer actually thinking that his sappy sarcasm is subtle enough to ring vaguely true to any but the most naive reader. Yet, since it is supposed to be a terrifying true story that "will disturb many people" and "deals factually with proof of the demonic underworld," one has to wonder why Curran would make such blind stabs at levity if he did not think he was shrewdly manipulating his audience.

I can suggest two possible explanations for the injection of this type of condescending wit: (1) he is trying to break up the already minimal tension of the rest of the book with a few laughs, or (2) he wants to create the kind of light-hearted Spielbergian setting that has proved to translate well onto the big screen. If pressed, I think I would choose Door Number Two, especially since he repeatedly tells us that the Smurls kept their sense of humor (such as it is) throughout their ordeal.

Time and again Curran reminds us that the family "had to be very careful not to be used or exploited by people seeking money or publicity or both." They went to the media for *help,* he reiterates, *not* because they smelled cold, hard cash. They called in Ed and Lorraine Warren, those modest, taciturn, publicity-shy homebodies, because other "experts all smacked of theatricality and greed." Seems logical.

The residents of West Pittston I interviewed, however, did not hesitate to tell me that they'd been suspicious from the first of the Smurls' motives for "going public" about what many believed to be, at best, a hysterical reaction to absolutely normal events. Several residents of Chase Street agreed with one neighbor who voiced the opinion that a book or movie deal had been in the works all along.

Sure enough, as early as September 6, 1986, the *Wilkes-Barre Times Leader* reported that Jack Smurl had been negotiating with a Hollywood production company for the film rights to his story. Stay tuned, because you can bet that's one cinematic experience I am not going to miss. •

A Quality Companion, With a Few Quirks

Oxford Companion to the Mind. Edited by Richard L. Gregory. Oxford University Press, 1987. 856 pp. Cloth, $49.95.

Steven N. Shore and Robert Cormack

PICKED UP by several book clubs and widely hailed in recent reviews, the *Oxford Companion to the Mind,* edited by Richard Gregory, appears destined to become a popular standard reference to psychology for many years to come. The editor is a respected researcher in perception, and the scientific credentials of the contributors carry the presumed imprimatur of the Oxford syndics. So it was with considerable interest that we looked for some discussion of paranormal phenomena.

There are more than a hundred index entries relating to paranormal phenomena in this compendium, including multiple references to individual articles. The discussions of the paranormal, in the articles on Extrasensory Perception, Paranormal Phenomena and the Unconscious, and Telekinesis, are indeed well done. The authors have taken a historical, skeptical approach and they quote some of the relevant skeptical literature on the subject. Perhaps the best of the articles, from this standpoint, is "Parapsychology: A History of Research," written by the late Christopher Evans. After a thorough, although brief, review of the stages of formation of the Society for Psychical Research in the nineteenth century, and of laboratory tests in this century, Evans sums up the field: "While it is true that many feel that parapsychology or psychical research is still a legitimate area of study, most scientists who have studied the topic in any depth are inclined to the view that a hundred years of fairly dedicated research has yielded disappointingly little in an area which should have offered great riches." A similar view is voiced by John Beloff, a person well known to readers of *SI,* in the article on Parapsychology and the Mind-Body Question: "It is an astounding fact that, a century after the founding of the Society for Psychical Research, there is still a total lack of consensus regarding the actuality of any parapsychological phenomenon."

While some of the references could have been more up-to-date (the publication date of 1987 is the culmination of about ten years of thinking and writing) at least a good selection of material is referenced, including some of the best of the standard believer books. Usually, detailed investigations that should be readily available are included. It would seem to end the subject when Gregory himself, in the article on the Paranormal declares: "So paranormal accounts do have empirical consequences, even though—in spite of the immense work of controlled experiments, especially on telepathy, and the collections of accounts of bizarre phenomena by Frederic Myers (1903) and later writers—we may seriously doubt whether there are any such phenomena." In the entry on Independent Thinkers, Patrick Moore dismisses all astrology and critically analyzes other paranormal beliefs.

All well and good. The skeptic seems to find here the protocols of scientific

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investigation well detailed and well applied.

It is thus disturbing to find that there is also an article on Astrology, which already seems inappropriate for this book, by of all people Colin Wilson. This is like letting a creationist write an appreciation of Darwin for a scientific review volume on evolution. The article is about four columns long, includes only standard believer references (including Hans Eysenck's *Encounter* article, A. L. Lieber's book on the lunar effect, and Michel Gauquelin's *Cosmic Clocks*), and makes no reference to the critical investigations of the past decades. The lunar effect and related studies are asserted to offer physical mechanisms for cosmic influences. This is in contrast to the sacrificial offering of traditional astrology, which is dubbed a pseudoscience (p. 51). On the same page, however, dowsing is ascribed to the detection of magnetic fields in a totally uncritical, and peripheral, statement. Without direct attribution, the original study that served as the purported basis of the Jupiter Effect, which claims that magnetic storms on Earth tend to occur during specific planetary conjunctions, the studies of blood hemorrhaging being correlated with full moons, and various other pseudo-physics demonstrations of celestial influences are cited as providing the basis for the new astrobiology. It is of little use that the article on Biological Clocks, by Martin J. Wells, discusses the physical and physiological basis for rhythmic patterns in living organisms—neither article cross-references the other. That such an article as Wilson's would have been commissioned in the first place and then allowed to appear in this volume seem the acts of an overburdened editor at best, and a serious lapse of judgment at worst.

In the entry on Subliminal Perception, N. F. Dixon argues that the phenomenon is well established but that "there are still those who cannot bring themselves to accept the reality of subliminal perception. In the writer's opinion, this carefully sustained prejudice is itself a psychological defense against the threat of possible manipulation which is implied by subliminal effects" (p. 754). Such circular and unfalsifiable reasoning should not have been allowed to stand unchallenged.

The article on Biofeedback by I. W. Pleydell-Pearce is another that many readers of *SI* would consider soft. The treatment is generally balanced, with no bald unqualified claims left standing. There is, for example, a slap on the wrist for the clinicians: "In general, in clinical biofeedback, there has been too great an emphasis on widespread application of biofeedback therapy and too little attention paid to models and underlying theoretical conceptualizations of the disorders and treatments"—but even this rings a little hollow. Theorizing seems inappropriate when empirical foundations are in doubt. Graphical data present evidence of dramatic successes in biofeedback sessions, but the data are for small groups and presented in a way that seems to belie some of the skepticism of the text. Were these the author's choice? Finally, the summary of the field is more accepting than many investigations seem to support. Relevant *SI* articles are not mentioned, but the review of the literature is otherwise useful.

These criticisms are not meant to detract from the overall quality of the vast majority of the articles, and the usefulness of this book to all who are interested in psychology and its myriad aspects. They are meant, rather, to point out the need to be aware that even in the most unlikely settings there are often little believer-planted time-bombs ticking away, awaiting only the glancing apprehension of the casual reader to trigger their action. •

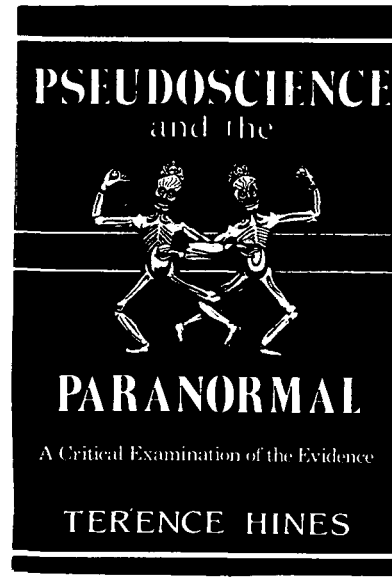
A Wide-Ranging Guide to Science and the Paranormal

Pseudoscience and the Paranormal. By Terence Hines. Prometheus Books, Buffalo, N.Y., 1988. 372 pp. Paper $16.95.

Wendy Grossman

TERENCE Hines was teaching a course in "Parapsychology and the Occult" at Pace University in 1984, when he realized there was no textbook for the topics he wanted to teach. So he wrote one. It is more than a college textbook. The book is a well-written, clear, concise, and comprehensive introduction to the skeptical point of view on a wide range of topics. Much of the material covered will be familiar to longtime readers of the SKEPTICAL INQUIRER, but it is an important book even to the well informed: It is up-to-date and comprehensive, and it covers some new ground.

After an introduction explaining the nature of pseudoscience, Hines devotes separate chapters to topics from Psychics and Psychic Phenomena, Life After Death, Laboratory Parapsychology, Psychoanalysis, Astrology, the Lunar Effect, and Biorhythms, to Faith-Healing; Health and Nutrition Quackery, and Current Trends in Pseudoscience—a pot-pourri, of such topics as Castaneda, the Shroud of Turin, and so on. Hines is methodical in referring to current research and in pointing out the patterns of answers to criticism common to the various kinds of pseudoscience.



I found Hines's discussion of psychoanalysis and other forms of psychotherapy of particular interest. It is a subject not often discussed in the SKEPTICAL INQUIRER. He describes the ways in which the defense and practice of psychoanalysis parallels those of other therapies more commonly accepted as pseudoscientific and cites studies showing that psychoanalysis works no better than placebo therapies. Further, he points out that Freudian theory depends heavily on the symbolic interpretation of dreams; when patients deny such interpretations, this is taken "as further evidence that the interpretation is true" (p. 112). Hines points out that this is yet another example of the nonfalsifiable hypothesis, something that recurs over and over again as he examines the arguments for and against various pseudosciences. He also calls attention to recent

Wendy Grossman, a freelance writer, is the founder of the British and Irish Skeptic Magazine.

research that has found neurochemical origins for many "disorders," contradicting some major psychoanalytic theories. Hines's chapters on Health and Nutrition Quackery and Current Trends in Pseudoscience also cover topics less frequently discussed, such as Castaneda's Don Juan, right- and left-brain theory, and health foods.

One can see that one of the major problems in writing this book must have been in deciding what to leave out to avoid its becoming unmanageably huge; however, the chapter on Current Trends neglected to mention many popular New Age beliefs. Such discussion would have been helpful as government health programs and private insurers consider whether to make coverage available for such treatments as hypnosis, acupuncture, homeopathy, and herbal medicines. Hines discusses homeopathy, acupuncture only briefly, and hypnosis as a tool for memory retrieval and past-life regression. However, he does not touch on the efficacy of hypnosis as a medical therapy, and he makes claims for the use of acupuncture in the relief of pain and for hypnosis as a genuine phenomenon without explaining the derivation of his conclusions.

All in all, the book is a good addition to a skeptic's bookshelf, for its up-to-date references, for its wide-ranging introduction to pseudoscience and the paranormal, and for its comprehensive coverage of the field. Hines shows the same patterns of claims and beliefs recurring in widely divergent areas. •

Skepticism and Spiritual Values

. . . Skeptics are also charged with "materialism"—rejection of spiritual values and spiritual possibilities. And this, too, is unjust. Among us you will find a broad spectrum of religious and spiritual persuasions; widespread interest in the mysteries that transcend science and our understanding; a profound appreciation of the revelations of both art and nature. Indeed, most skeptics find such doctrines as "creation science" and astrology spiritually oppressive—with their medieval, self-centered, geocentric perceptions of a shrunken universe; their feeble caricatures of its laws and the logic of its causes and effects; their reduction of its cosmic history to a millionth part of the awesome scope and grandeur that science has revealed. To most of us, the glories of creation seem pathetically diminished by these doctrines. And we believe, with Tennyson, that "there lives more faith in honest doubt, believe me, than in half the creeds."

—Robert S. DeBear, "An Agenda for Reason, Realism, and Responsibility," *New York Skeptic* (newsletter of the New York Area Skeptics, Inc.), Spring 1988

Articles of Note

Bishop, Jerry E. "Cancer 'Conspiracy' on Film." *Wall Street Journal,* May 2, 1988, p. 20. Column about a recent film, "Hoxsey—Quacks Who Cure Cancer?" which appears to resurrect the claims made by Harry Hoxsey of an herbal tonic to cure cancer. The film "turns out to be an ill-disguised attempt to resurrect the Hoxsey treatment as well as promote other 'alternative methods' of cancer treatment, as they are charitably called."

Blackmore, Susan. "Visions from the Dying Brain." *New Scientist,* May 5, 1988, pp. 43-46. Shows how physiological and psychological effects can explain the symptoms of near-death experiences and suggests that while this tells us little about after-death or spiritualism it can teach us about the brain.

Booth, William. "Voodoo Science." *Science* (News & Comment), 240:274-277, April 15, 1988. Investigative report into claims by ethnobotanist Wade Davis of finding a natural chemical used in the creation of zombies of Haitian folklore. Critics challenge his claims, which were expanded upon in his book *The Serpent and the Rainbow,* and say he ignored contrary evidence.

Borderwich, Fergus M. "Colorado's Thriving Cults." *New York Times Magazine,* May 1, 1988, pp. 37-44. Descriptive article on appeal of New Age metaphysical, and occult ideas among conventional society in Colorado.

Charlier, Tom, and Shirley Downing. "Justice Abused: A 1980s Witch-Hunt." *Commercial Appeal,* Memphis, Tenn., January 1988. An exhaustive six-part investigative newspaper series about the apparently wrongful accusation and prosecution of people for ritual child sex-abuse. Provides evidence for "a kind of mass hysteria" that swept the country, led by some authorities, and urged on by frightened parents and credulous members of the press into a witch-hunt "unparalleled in modern times," including the slim evidence used to support claims of satanic rituals in more than 100 cases. In an introductory editorial to a reprint of this 14-article series (available from the newspaper), Assistant Managing Editor Don Henderson concludes: " 'Justice Abused' is not really about ritual child sex abuse at all [and the paper does not minimize the terrible crime of child sex abuse]. It is about the dangers of popular justice, a less-than-skeptical press, and the presumption of guilt, . . . about hysteria and witch-hunts."

Culver, Roger, James Rotton, and I. W. Kelly. "Moon Mechanisms and Myths: A Critical Appraisal of Explanations of Purported Lunar Effects on Human Behavior." *Psychological Reports,* 62:683-710, 1988. Critical appraisal of the explanations put forth by lunar advocates to account for the supposed "lunar effect" on human behavior. (Previous articles have shown no reliable correlation between phases of the moon and human abnormal or deviant behavior; see *SI,* Winter 1985-86.) Systematically considers one by one the hypotheses of ozone, moonlight, gravity, tidal force, geomagnetism, electromagnetism, weather, ions, and ELF

waves. Finds none of these sufficient to explain such alleged effects. "In view of (*a*) the lack of a satisfactory mechanism, (*b*) the lack of a reliable connection between lunar periodicities and human behavior, and (*c*) the generally negative results obtained in studies, it is suggested that the scientific community exercise great caution with regard to further studies claiming lunar effects on human behavior."

Dalton, Rex. "Quackbusters Inc. Hot on the Heels of Medical Hucksters." *The Scientist,* vol. 2, no. 9, May 16, 1988, pp. 1-2. Lengthy feature on William Jarvis, Wallace Sampson, and other members of the National Council Against Health Fraud and their efforts in combatting the multibillion-dollar pseudomedicine industry in the U.S.

DeWitt, Dave. "The Alien Abduction Hoax." *Slant* (Richmond, Va.), March 1988, pp. 6, 13. Report critical of alien abduction claims. Reports on criticisms by Baker, Spanos, and Klass from recent articles in the SKEPTICAL INQUIRER.

Feinberg, Tony. "Feelings Torn in the USA." *New Scientist,* May 19, 1988, p. 66-67. Commentary on the ready acceptance of astrology and Nostradamus in the U.S. and the likely effect that these and other rejections of rationality will have on the country's scientific and technological leadership. (See p. 14 for excerpt.)

Fraknoi, Andrew. "Why Astrology Believers Should Feel Embarrassed." *San Jose Mercury News,* May 8, 1988. (See p. 13 for excerpt.)

Gardner, Martin. "Bumps on the Head." *New York Review of Books,* March 17, 1988, pp. 8-10. Essay on pseudoscience, in reviewing Wrobel's *Pseudo-Science and Society in Nineteenth-Century America.*

Gardner, Martin. "Seeing Stars." *New York Review,* June 30, 1988, pp. 43-45. Essay-report detailing the long history of President Reagan's enthusiasm for astrology.

"Gardner and Palmer." *Free Inquiry,* Spring 1988, pp. 64-66. Includes letter in which Gardner responds with verve to claims (by Chester Geier, in a letter also published in that issue) that he made 12 errors about Ray Palmer in his earlier article on science-fantasy religious cults. Gardner gives the letter-writer an overall accuracy score of D+.

Gove, H. E. "Radiocarbon-dating the Shroud." *Nature* (Correspondence), 333:110, May 12, 1988. Letter by University of Rochester scientist lists seven "unnecessary and unexplained changes unilaterally dictated by the Archbishop of Turin" from procedures in the original protocol for taking a sample and dating the shroud material. The result will be a date "vastly less credible. . . . Perhaps that is just what the Turin authorities intend."

James, Jamie. "Bigfoot or Bust." *Discover,* March 1988, pp. 44-53. Illustrated, well-balanced feature article on claims and quests for undiscovered animals.

Jaroff, Leon. "Fighting Against Flimflam." *Time,* June 13, 1988, pp. 70-72. Profile of James Randi, who "uses his skill as a professional magician to expose psychics, astrologers, spiritualists, channelers, faith healers, and a host of mystics and charlatans."

Langford, David. "Myths in the Making." *New Scientist,* May 26, 1988, p. 76. Author describes his spoof book about a supposed nineteenth-century encounter with UFO aliens. No UFO publication that mentioned it asked the obvious question: "How about a look at this 108-year-old manuscript?"

Morain, Lloyd. "How Pseudoscientists Get Away With It." *The Humanist,* March/April 1988, pp. 17-22. An introduction to the rudiments of flimflammery. One of three articles intended to help understand New Age thinking.

Morris, Charles. "Comments on Mysticism and Its Language." *The Humanist,*

March/April 1988, pp. 27ff. Inquiry into the languages of mysticism and their relation to the language of science.

Negri, Maxine. "Age-Old Problems of the New Age Movement." *The Humanist,* March/April 1988, pp. 23-26. The lure and promise of mysticism's latest incarnation.

Oberg, James. "UFOs in the Mind's Eye." *Sky & Telescope,* June 1988, p. 572. Report on UFO sightings around the world caused by launch and in-orbit fuel-dump phenomena of rockets and satellites, and the lessons therein about the inaccuracy of reports about strange aerial phenomena.

Pohl, Frederik, "Fritjof Capra: Mesmerized by Resemblances." *New Scientist,* April 14, 1988, pp. 63-64. Critical essay-review of Capra's *Uncommon Wisdom* and his claims that much of the "factual" knowledge of physics is an illusion. Pohl rightly argues that the resemblance between modern physics and mysticism is itself an illusion: "What physicists say *in words* is only an attempt to approximate what can properly be said only in mathematics; what fails is not the reality, but the description of it."

"Psychic Tots in China." *Discover,* July 1988, pp. 26-28. News report on CSICOP's tests of Qigong masters and alleged "psychic children" in China.

Rooney, Andy. "A Very Long Distance Call." Syndicated newspaper column, Tribune Media Services, Inc., March 22, 1988. The commentator here turns serious in a scathing attack on claims that it is possible to predict the future, divine events, speak to God, or acquire information through unknown senses.

Spice, Byron. "Scrutiny Wilts Chinese Psychics." *Albuquerque Journal,* June 6, 1988, p. 6B. Lengthy news report on CSICOP's visit to China and tests of "psychic children" and Qigong masters.

Straub, Gerard Thomas. "Blowing the Whistle on Pat Robertson." *The Humanist,* May/June 1988, pp. 5-12. A former producer of the "700 Club" tells the inside story of his exposé of his former employer's "lies to the media" and messianic motives.

—Kendrick Frazier

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Follow-Up

Columbus Poltergeist Case: An Update

I MUST apologize to *SI* readers for having failed to present the promised Part 2 of the "Columbus Poltergeist" story. (Part 1 appeared in the Spring 1985 *SI*) There are many reasons for this. First, the usual pressures of work and travel. But, more important, I was determined to give the editors of the *Columbus (Ohio) Dispatch* ample opportunity to make proper adjustments in their attitude, and thus spare them the embarrassment of having to face up to strong criticism of their ethics and behavior. CSICOP Chairman Paul Kurtz, *SI* Editor Kendrick Frazier, and I wrote repeatedly to the *Dispatch* to urge their cooperation, but to no avail. If anything, their stance hardened.

I met with their photographer and pointed out the errors in his account of the event, but he persisted in his determination to rashly misrepresent the entire situation. The case against his version is devastating indeed. During one of his public appearances, I was able to demonstrate my proof; he still persisted. Even *Dispatch* reporter Mike Hardin, who covered the story in the company of the photographer and managed to overlook considerable evidence that did not serve the preferred story line, could not support the hyperbolized and highly colored version that the photographer offered. This version was presented to readers of *Fate* magazine in a lengthy account that greatly pleased the gullible.

My purpose was, and always has been, to give all those concerned every opportunity to retract and/or correct their statements. They have all refused.

The story is now essentially dead. The parapsychologists—most of those I have spoken to—have accepted the probable scenario that Tina Resch was a publicity-seeking teenager who used simple deception and considerable guile to create a story that an incautious and rather uncaring newspaper staff snapped up and used for as much mileage as they could get. To belabor the details any further here would serve no useful purpose. I may choose, at at a later date, to write up the complete story as a book chapter. Until then, I will lay it safely away in storage.

—*James Randi*

From Our Readers

Psychosis and possession

I enjoyed "Neuropathology and the Legacy of Spiritual Possession" by Barry Beyerstein (Spring 1988). He left out, however, the most common cause for one to seem possessed, rarely a psychotic illness.

The most common causes are schizophrenia and manic-depression (now called bipolar disorder). Organic causes (i.e., stroke, brain tumor) can also produce psychoses. The incidence for schizophrenia is 1 percent in the general population and a little higher for bipolar disorder.

Thousands of people in every state have these conditions. One may have a delusional belief that the devil is in one's body, that one has magical powers, or that one is God. This is often associated with disturbances in the stream of logical thought, auditory and/or visual hallucinations (i.e., hearing God's voice or seeing God or other "creatures"), flat affect, and experiencing the ability to mind-read, broadcast thoughts to others, receive special messages from the TV, etc.

I work in a busy psychiatric emergency room and usually (almost always) a patient presenting a "possessed" state has schizophrenia or bipolar disorder. These illnesses are so common and so bizarre that it would be easy for one not educated to their nature to assume the patient was spiritually possessed. (Surprisingly, some people who work with these patients still maintain that spirits or the devil are responsible for changes in their neurotransmitters.)

Beyerstein's article is interesting. We have a saying in medicine: "If you hear hoofbeats, think horses not zebras." When I hear the police are bringing in a patient whose family thinks he is possessed, I think psychosis. I examine the patient to rule out an organic condition.

Doug Berger, M.D.
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Barry Beyerstein's "Neuropathology and the Legacy of Spiritual Possession," while informative, is not above an occasional howler, and less feloniously, a sin of omission.

Beyerstein declares that the "psychoneural identity hypothesis," the theory that "consciousness is strictly tied to the function of individual brains" (p. 248), has received strong empirical support. Moreover, Beyerstein insists, it "undermines occult beliefs in disembodied minds, 'cosmic' consciousness, telepathy, and the like" (p. 248). How strict the tie between conciousness and brain states is depends on one's vantage point. For example, it is not clear why Beyerstein feels telepathy implies that consciousness is *not* tied to brain states. And in an uncontroversial way, even demonologists would not challenge the idea that shifts in consciousness are often produced by changes in neurophysiological processes. In yet another sense of "strict" connection, it is unclear whether Beyerstein propounds the thesis that consciousness *is* a brain state or merely a causal or noncausal consequence of it.

Beyerstein is wise to indicate that neurological disorders like epilepsy, Tourette's Syndrome, and migraine merely *fomented* ancient beliefs in spiritual possession. He may have wished to avoid the hyperbole endemic among psychiatric historians that the disorders in question are necessary conditions for these beliefs.

Beliefs in possession probably developed as an outgrowth of any number of unrelated factors: theology, historical circumstance, observation, and happenstance. The witch-craze itself, with its attendant fears of diabolical possession, did not extend into countries like Spain, where Catholicism was unchallenged by heresy the way it was in the mountainous regions of Europe. Had disordered behavior (or supernumerary nipples or patches of cutaneous anesthesia) never appeared on the bodies of sixteenth-century women, pious Dominicans would have still diagnosed witchcraft from such happenstances as crop failure, plague, swarming flies (a special bane of St. Augustine of Hippo), or male impotence.

Beyerstein's omission is the psychiatric disorder, a likelier candidate for facilitating belief in possession than the neurological anomaly, if only because of its greater prevalence. Mention should be made here of the hysterias, schizophrenia, affective disorder, and the like. But for dramatic personality shifts, multiple personality disorder (MPD) probably takes first prize. It is a behavior pattern characterized by the presence of "voices," often of several personae of different sexes, and more differentiated than in schizophrenic hallucinations, periods of amnesia when one personality takes the place of another with a different style of dress, handwriting, dialect, etc. The objection that as a fomenter of spiritualism MPD should take a back seat to other disorders because it is on the rarish side may itself be incorrect. There are currently more than 10,000 identified MPD patients in treatment in North America. (I am currently seeing four in psychotherapy.) MPD is rare only when misdiagnosed as what it is not, namely, schizophrenia, mood disorder, borderline personality disorder, hysteria, fugue state, and—if we can be reasonably sure we do not have an instance of bombinating spirits—diabolical possession.

D. A. Begelman, Ph.D.
Clinical Psychologist
New Milford, Conn.

Barry Beyerstein replies:

Dr. Berger's point is well taken that more people with delusions of grandeur and possession suffer from psychoses than from the disorders covered in my article. Since schizophrenia and the affective psychoses also involve biochemical abnormalities in the limbic system, symptomatic overlap with the disorders I described is not surprising. It was the diversity of pathological and behavioral *conditions that can cause these awesome and seemingly paranormal experiences—by affecting limbic function—that I had intended to emphasize. I highlighted the syndromes I did because they can trigger feelings of possession, etc., without the other characteristic thought disorders of psychoses, and thus sufferers might seem "really" possessed, even to those who would recognize psychotic symptoms. In an earlier draft I stressed parallels with schizophrenia, brain damage, and drugs, but deleted them in shortening the paper because I thought most readers would already be familiar with these effects. I thank Dr. Berger for balancing the emphasis.*

Since my article appeared, I have heard from a few people with temporal-lobe epilepsy (TLE) who say they do not conform to the "TLE personality" I described. I must apologize if I did not stress sufficiently that not all TLE patients feel and act this way. There are several possible reasons this personality syndrome mightn't appear in every patient.

Among my aims in writing the article were (1) to combat the superstitions and prejudices still plaguing epileptics today, by emphasizing the disease's natural causes and medical control, and (2) to point out how the conscious sequelae of untreated *epilepsy probably contributed to prevalent supernatural beliefs. I sincerely regret if in trying to fight unfairness toward epileptics I unintentionally perpetrated another myself.*

In reply to Dr. Begelman: On p. 170 of my article I cite Godbey to the effect that telepathy is not *(as some have claimed) logically incompatible with psy-*

choneural identity (PNI) in the sense that, say, "astral projection" or a "demonic spirit" would be. I agreed with Godbey that it is not inherently absurd to maintain that consciousness is strictly tied to individual brain function but that some hypothetical "energy field" generated by one brain's function could impose a copy of that activity on another brain such that it now "knows" what the first brain knew. I then pointed out the number and the peculiarity of the mechanisms entailed by assertions that telepathic communication between "brain-resident" minds is possible within current canons of science. The immensity of the task of "imposing a copy of a thought on another brain," the lack of plausible hypothetical physical and physiological mechanisms, and their strangeness vis-à-vis the rest of the scientific world, raise grave doubts as to their existence—pending satisfactory demonstrations of telepathy, of course. They do not rule them out a priori.

Regarding Dr. Begelman's uncertainty about my position on psychoneural identity (PNI), the term means that mental experience is *a brain state (as opposed to simply a consequence of brain function). I am aware of the philosophical debate concerning PNI (cf. references cited in the article) and, as he rightly notes, I refer to it as a* hypothesis *or a* theory. *As a working psychobiologist, I apply the same criteria here as in any other area where theories compete. I opted for PNI over dualism and various other versions of monism because it is the simplest, most logically consistent, and most parsimonious hypothesis to account for the greatest range of empirical data; it also avoids certain logical difficulties associated with dualism. In citing Malcolm (p. 164), I conceded that PNI cannot be proved correct empirically, only supported by the balance of evidence. That is all science can ever hope to accomplish.*

I agree with Dr. Begelman that there are many political, economic, and social (including sexist) factors that gave rise to demonology and persecution of alleged witches and that there are several other mental aberrations space prevented me from including that also contributed to the underlying beliefs. While the subjective feeling of these brain anomalies probably did suggest ancient concepts of of an animistic universe and spiritual possession, I have no doubt he is correct that the social agendas of the persecutors would have generated other reasons to proceed had these not conveniently presented themselves.

Brain and Consciousness

I subscribed to your magazine thinking I would see some hard scientific methodology applied to various phenomena; that you would be debunking based on solid evidence. Instead, I find that you are the ones who need debunking. What a paradox that you engage someone like Barry Beyerstein to write on consciousness ("The Brain and Consciousness," Winter 1987-88). He writes as though he has not kept up with the newest advances in the field.

He writes about me and my therapy as "suspect." Suspect by whom? It is the most heavily researched of all private therapies; a two-year double-blind study just having been finished by Open University and St. Bartholomew's Hospital in England. We have done more than 15 years of objective research (largely done by outsiders). Where has he been? He has done me a disservice; but worse, he has undermined a scientific therapy that involves thousands of patients. He has no right to trifle with people's lives based upon his personal whimsy. I have never asserted that neurosis stems from the birth trauma. It is but one of many traumas. However, we have measured the force of that trauma by electronic means, including EEG, and have found it to be powerful. That should also take care of his statement that the newborn and fetus feel no pain and cannot code and store trauma. Unfortunately, he has confused me with charlatans like Verny (who stole my theories and practice and then bastardized them) and Ron Hubbard, who is beneath discussion.

Leonard Orr also took my discussion

of the possibility of reliving birth and vulgarized it into a most dangerous procedure; and he really needs debunking. Memories from the womb are *not* "extremely doubtful." There is overwhelming evidence of fetuses grimacing and reacting to noxious stimuli. To say nothing of our brain research in that area. Not only is he a poor benighted soul who knows not whereof he speaks, but his sloppy work makes everything else you do suspect. A good investigator asks questions, visits principals, seeks out information; he does not just publish his whimsies. You have done yourself a great injustice. Please cancel my subscription and return my money.

Arthur Janov
Marina del Rey, Calif.

Barry Beyerstein replies:

Suspect by whom? Only the majority of psychobiologists, cognitive psychologists, and psychotherapists, it would seem. Dr. Janov's own characterization of "primal screaming" as a "private therapy," 20 years after its inception, unwittingly concedes as much. Though he was more harsh than I on others who make claims similar to his own, I wish he had made it more clear how his position differs from theirs regarding my specific objections, which had to do with alleged fetal memories.

Janov's theories are good examples of what we in brain research refer to as "naive neurologizing." While he is quick to appropriate legitimate findings from neuroscience that may be consistent with but do not entail his essentially unfalsifiable theory of neurosis, he glosses over alternative interpretations and conflicting research in neural development and early memory. Rather than stooping to name-calling, he should state the evidence that he claims contradicts the authorities I cited.

Janov's claims notwithstanding, I did not say that fetuses and neonates cannot feel pain (but see below), or deny that there are intrauterine effects on behavior. No one seriously doubts getting born is physiologically stressful, but that begs the question of the ability to recall the event or of its lasting psychological consequences—Janov simply postulates that which is to be proved. But since he raises the issue of pain—reflexive reaction to noxious stimulation is quite different from the complex psychological construct of pain that involves learned, cognitive, emotional, and social components in addition to simple sensation (which is functional at birth). I invite readers to contrast Janov's notion of "primal pain" to that of expert pain researchers (cf. Melzack and Wall, The Challenge of Pain, *Penguin Books, 1982).*

Furthermore, if Janov thinks measuring "the force of the trauma" by perinatal EEGs is in any way relevant to the present dispute, he sadly overestimates the technology. But all this aside, the dramatic rise in endorphin levels (endogenous morphinelike neurochemicals) around the time of birth raises doubts as to how agonizing the experience would be for the baby, even if its brain were mature enough and the event could be remembered. Additional problems are that widely used perinatal anesthetics and muscle relaxants impair memory formation, as does the neuropeptide oxytocin, secreted naturally by the mother's pituitary to stimulate birth contractions.

Regarding whether adults truly recall rather than confabulate alleged "perinatal memories," Janov offered invective but no rebuttal of the doubts raised by much research on "state dependent learning" and on "childhood amnesia" (cf. D. Rubin, ed., Autobiographical Memory, *Cambridge Univ. Press, 1986) and the fallibility of "eyewitness testimony" (see references in my article). These raise serious problems for Janov's reliance on patients' "recollections" as evidence for his theory. Baker (*SI, *Winter 1987-88) offers excellent alternative explanations for why age-regressed primal screamers, encouraged as they are by their therapists, genuinely think they remember their nativity when authoritative memory researchers and developmental psychologists have reason to doubt they can.*

*I never disputed Janov's claim that people may derive subjective benefits from primal screaming. Emotional catharsis can relieve tensions, but this is not proof of his underlying theory—the power of placebos in psychotherapy is legendary. In response to Janov's intemperate rejoinder, I asked a colleague, an eminent clinical psychologist, to direct me to the leading clinical psychology texts and professional psychotherapists' handbooks. Of the former, only one out of five contained even a single reference to primal therapy. Goldenberg (*Contemporary Clincial Psychology, *2nd ed., Brooks/Cole, 1983) briefly mentions it among several "lesser-known techniques." Amid such terms as "faddish," "notoriety," and "highly skeptical," he concludes: ". . . There is as yet no acceptable proof either for Janov's ideas regarding the origins of neuroses or for his unorthodox way of alleviating these problems" (p. 274). One of the two professional handbooks contained no references to Janov; the other cited him as an example of explanatory excess. That, I'm afraid, is who suspects.*

MJ-12 papers

Philip J. Klass's articles about the MJ-12 papers intrigue me. At MIT, in the late 1930s, I worked part-time on the Van Bush differential analyzer, and from October 1940 to July 1942 I was a staff assistant in the Aeronautics Department. My memories of Dr. Vannevar Bush and Dr. Jerome Hunsaker, both alleged members of Majestic 12, don't support the notion that they were hoodwinkable.

From January 1949 to July 1952 I was with Technical Intelligence at Wright Field and held a Top Secret clearance. So I was there in 1950 when one of the saucers presumably crashed. It puzzles me that I never even heard rumors about "crashed saucers." Of course the "believers" would say that tight security kept anyone from knowing about it.

If the saucers' remains are real, one would expect them to be at Wright Patterson Air Force Base. I have two questions: Are they there? and Can anyone go see them?

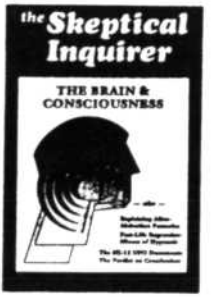
Larry Kelbley
Rancho Palos Verdes, Calif.

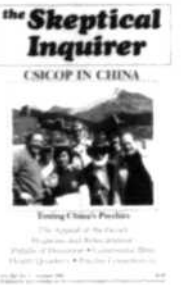
Sorry state of imagination

Concerning the comments made about Whitley Strieber's "experience" being due to extreme bouts of imagination rather than blatant deception of the masses, I concur with the hypothesis, if only because Strieber's experience as a fantasy/horror writer would allow him to concoct better aliens if in fact he were fabricating his tale. The fact that his book reached the bestseller list as a "true story" demonstrates the sorry state of imagination in the American public, as his story would be laughed off the stands had it been released as science fiction.

I see an interesting parallel between the development of UFO-contact stories and that of science fiction: While the aliens in literature become more scientifically plausible (excellent examples of which are found in the works of Isaac Asimov, Hal Clement, and James P. Hogan), as well as more bizarre, the aliens usually encountered by humans here and now are only as esoteric as those seen in television programs and movies. (I, for one, found Strieber's extraterrestrials to be strikingly similar to those in the cult cheapie "Laserblast.") Although such a survey might be redundant, a poll noting the tastes in science fiction among UFO buffs may be illuminating.

At any rate, I find the body forms of our celestial visitors to be hopelessly boring. We see no quarter-ton felinoids from Kzin determined to turn humanity into Meow Mix, no crustaceous fungi from Yuggoth who collect human brains for study, nor even the Gigerian equivalents of digger wasps. No, most of the alien abductors (in this sector of the galaxy, apparently) are the typical humanoid E.T. clone. I only hope that if I ever find myself aboard a mysterious craft the pilots will be rather exotic. After all, how many abductees report being kidnapped





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by giant salt shakers with plumber's helpers for arms and a disconcerting tendency to yell "EX-TER-MIN-ATE!"?

Paul T. Riddell
Carrollton, Texas

Morphic resonance test

I read Varela and Letelier's article "Morphic Resonance in Silicon Chips" (Spring 1988) with great interest. Unfortunately, I believe their experimental design is flawed in such a way as to allow Sheldrake's "morphic resonance" hypothesis to escape falsification once more. I say "unfortunately" because I believe it to be essentially unfalsifiable in the accepted scientific sense.

In any case, Varela and Letelier's experiment assumes an ideal computer system and methodology that is unobtained in the actual experiment they perform. The basic flaw concerns the fact that the computer system's internal events are all driven by a single piece of circuitry based upon a timing crystal oscillating at a preset frequency. This crystal is the "clock" that underlies the order of events in a computer. Both the clock and its operating frequency are outside the scope of the experimentally manipulated events, yet it is the determining factor controlling how long any iterative event or set of events will take within the CPU/registers and related circuitry. No amount of clever or improbable pattern generation has or can have an effect upon this condition. It is simply part of the way computers are designed to work.

So long as the system clock is unaffected by the experimental design it is impossible in principle to either falsify or verify Sheldrake's hypothesis by the method of Varela and Letelier. What their experiment's minimal variability in timings does show is the apparent imprecision in the clock, the measurement apparatus, and the CPU/register circuitry. Their graph clearly shows that the time needed for operations within these circuits deviates only slightly across time, which is precisely what one expects from a correctly operating computer.

There does seem to be some theoretical merit to the design of the Varela and Letelier experiment, but upon closer inspection one sees that it cannot be performed in an actual computer whose clock is the controlling factor of the rate at which bits are set and reset. I suggest that they consider redesigning the experiment in some way to include the system clock. Whether this can be done without simply replacing the flaw described here with another one equally pernicious is an open question. I would guess that there is no crucial experiment one can perform to falsify or verify Sheldrake's hypothesis concerning "morphic resonance."

Anthony Fedanzo, Jr., Ph.D.
Corte Madera, Calif.

In "Morphic Resonance in Silicon Chips," Varela and Letelier attempt to use a computer to disprove Sheldrake's hypothesis of formative causation. While I certainly don't agree with this hypothesis, the experiment is fatally flawed.

In the first place, when data are stored in semiconductor devices, this occurs at a level far above the molecular, being accomplished in structures of several transistors, each made up of millions of silicon atoms. There really isn't any effect at the level of the atomic orbitals. If there were, irreversible changes would soon take place in the crystalline structure comprising the electronic circuitry; in fact, nothing of the kind takes place. Such devices are remarkably stable and have no known "wear-out mode."

The real problem, however, is due to the fact that the computational rate of the computer is governed entirely by its quartz crystal clock; given a recurring initial condition, the time required to reach a particular final state will be constant to within the accuracy of this oscillator, which is typically ± .005 percent. (Incidentally, the counter they used to measure times has as a reference a crystal clock of similar accuracy.)

As an analogy, consider an orchestra

that has rehearsed a certain piece many times, is now thoroughly familiar with it, and could now play it much faster than originally. If, however, it is being led by a conductor with a metronome, every performance will take precisely the same amount of time. So it is with the computer, and it is not at all surprising that all the measurements came out the same; anything else would have been very remarkable indeed.

Isaac S. Wingfield
Woodland Hills, Calif.

We received many similar letters. Below, Dr. Varela responds.—ED.

The point raised by several readers is, of course, an important one. It is unfortunate that we did not deal with it clearly in our text.

We were aware that the pattern in the chip lattice was under the control of the computer clock. But our argument rests not *on the analysis of the controlling (or causal) forces of a phenomenon, but on the morphic resonance hypothesis that there is an* added factor *(i.e., the "field") that intervenes between such controlling forces and their consequences in such a way as to shorten the time it takes for the establishment of a pattern. Sheldrake himself says that this should apply to crystal growth. Our reasoning was then as follows: If morphic resonance applies to a "natural" situation, then why not to a process occurring in a man-made artifact? In a "natural" crystal growth there are* also *controlling forces, which also contain a very finely tuned temporal fabric, as measured globally by the gradient decrease of free-energy during crystalization. If morphic resonance can alter this thermodynamic timing, why couldn't it alter the vibration of a quartz clock? Just because we know in greater detail how the chain of causal events works since we built the computer?*

We agree with all the readers that this is *bizarre! This was precisely the point of our little experiment: driving the argument into a domain where we can see more patently how untenable it is, at least as stated. If morphic resonance is taken as stated, then it does predict that computer clocks should* give the impression *they are working faster (as well as people's rhythms marching to recorded music by the way, vitamins or not) Granted, one could introduce all sorts of* ad hoc *modifications in the hypothesis, such as categorical distinctions between natural and artificial processes. But then the hypothesis would not apply to, say, the polymerization of plastics, since these products are also man-made. And so on. There is no such thing as an* experientia crusis *in science, and our test wasn't meant to be one. Its aim was far more modest: to reveal the weakness of the hypothesis of morphic resonance as stated, and to suggest hopefully better ways to put it to a t(r)est.*

Francisco Varela
C.R.E.A.
École Polytechnique
Paris, France

A communication from Rupert Sheldrake, received too late for inclusion here, will appear in the Winter issue.—ED.

Specious scientific explanations

In a recent letter to the SKEPTICAL INQUIRER (Spring 1988), Rodney Forcade characterized one benefit of skepticism as the more effective and enriched reality that results from "filtering out . . . simplistic, deadend explanations (ghosts, goblins, etc.)." We would like to extend his parenthetical list to include glib scientific explanations, which, we contend, pose a greater threat to our understanding of nature than do paranormal ones. Specious scientific explanations are wolves in sheep's clothing; they eat away at our understanding from within.

We are sure that readers can provide their own litanies of specious explanations offered cavalierly as sound. The success of such explanations lies not so much in reason, for they usually are easy to demolish, but in the same thing that

sustains all pseudoscience: the will to believe and the satisfaction gained from learning that someone has an explanation. Acceptance of these explanations relies on authority rather than on reason and careful observation.

If glib explanations are anathemas under the best of circumstances, what are we to make of them when offered as a counter to the paranormal? Should we be elated or sad when slipshod science is used to refute pseudoscience?

Bunch and White's article, "The Riddle of the Colorado Ghost Lights" (Spring 1988), exemplifies slipshod science. Although their article may leave the uncritical reader (one who confines his skepticism to the paranormal) with a warm feeling that the enemy has once again been driven back, it is actually a scientific Maginot line.

First, the authors are muddled about terminology: the "critical angle" (i.e., angle of total internal reflection) they invoke has nothing to do with what they are trying to explain. Then inconsistencies of fact or reason appear. We are assured that "a typical headstone is flat" and then that "images reflected at oblique angles become stretched." The implication of this is that images in flat mirrors become increasingly oblong with increasing angle of incidence. That they do not is easy to verify.

Next appear explanations of reflections by curved surfaces. The authors state: "A mirror curving in (concave) can sharpen a reflection to a point, while one curving out (convex) can take a source of light and distort it to be a formless blob." Images reflected in a concave mirror of objects at distances greater than its radius of curvature are demagnified, as are images reflected in a convex mirror regardless of distance. This can be ascertained by comparing reflections in the two sides of the bowl of a spoon with reflections in a planar mirror.

Finally, their argument that the "light will be almost totally reflected if it hits the marble at an oblique-enough angle" is unsatisfying. It is a member of that class of argument that asserts that effect x will occur if the conditions are right for effect x to occur. But what are those conditions and did they occur? How oblique must the angle be? The answer is that the light must be incident at near-glancing angles. Moreover, the observer must be situated so as to receive the reflected light. Although these conditions might be satisfied for city lights near the horizon, they would hardly be satisfied for the ghostly lights that the authors assert had their origin in the stars, the brightest of which would be high in the sky.

Reflections may indeed be the origin of the Colorado ghost lights, but we remain unconvinced by the explanation offered. The authors leave too many loose ends untied. We do not doubt their sincerity in wishing to debunk a paranormal explanation, yet this does not absolve them from criticism for not applying the same rigorous standards to their task as are expected from those who adduce evidence in support of a normal explanation.

This brings us back to the deeper issue: Can the SKEPTICAL INQUIRER afford to weaken its case by countering pseudoscience with slipshod science? Shouldn't this journal apply the same standards of skepticism toward scientific explanations as it does to paranormal ones?

Alistair B. Fraser,
Professor of Meteorology
Craig F. Bohren,
Professor of Meteorology
Pennsylvania State Univ.
University Park, Pa.

Kyle J. Bunch and
Michael K. White respond:

We welcome any and all criticism, and we apologize for any technical errors; we are not infallible. We do not apologize, however, for using qualitative arguments rather than quantitative ones to explain paranormal events, and we find the writers' criticism of this aspect rather ironic considering their own field. The fact that the premises used to explain the

ghost lights are open to refutation and verification stands as the strongest response to the accusation of pseudoscience.

Good work

First Philip J. Klass destroyed whatever credence I had placed on UFO reports, and now Thomas L. Creed has done every bit as much damage to my good opinion of Wilson Bryan Key's writings, as did Key's own off-the-wall reply (Winter 1987-88) to Creed's article.

I sincerely hope that all your contributors will keep up the good work. Maybe I'll eventually get things straight.

Ken McCormick
Birchrunville, Pa.

Chiropractic

The recent article by William Jarvis, "Chiropractic: A Skeptical View" (Fall 1987) is a well-written piece and is quite up to the standards of the bulk of the author's work. Jarvis serves a very important function. Health-care practices have always required constructive criticism, and the National Council Against Health Fraud Inc., which Jarvis founded, represents an important step in keeping health care responsible in an era of "Caveat emptor."

I do, however, have a number of concerns about the Council, and about Jarvis's article. Principally, it is most apparent to me that he uses different standards for different health-care systems. Thus chiropractic is compared with some ideal, whereas medicine is usually quoted (without criticism) as "medical science," presumably meaning that while the former is subject to scrutiny, the latter has arrived.

As a physical chemist with a number of publications, I must say that I share many of Jarvis's concerns, except that mine are directed at all health care, including medicine. It seems to escape the attention of Dr. Jarvis, a social scientist, that scientific training for physicians (i.e., in physics, chemistry, and the less descriptive regions of biology) may be merely adequate, and that as a result they may offer poor examples to those chiropractors who inaccurately look on medicine as the leader in scientific thinking.

In response to a number of specific points made, terms like "innate life force" (which in modern phrase is just the tendency to revert from a perturbed system to the normal upon the application of mild restraints) have been used throughout the history of chiropractic. Nineteenth-century explanations often have their counterparts today, and the making of such identifications, analogous to a practice common in modern physics, is a fruitful endeavor. "Cause of disease" is often confused with mere concomitants in all health-care practices. Inconsistent diagnoses, too, are common to all.

Keep up the good work, Bill, but you will not convince me, for one, until you stop using a double standard.

Bernard A. Coyle, Ph.D.
Vice President for Academic Affairs and Research
Palmer College of Chiropractic-West
Sunnyvale, Calif.

My first reaction to William Jarvis's article on chiropractic was that Dr. Jarvis had taken information he felt would accomplish the purpose of discrediting chiropractic in our society today. Although some of his points are well taken, it is apparent that he either is not familiar with the research that has been conducted or decided it was not in his best interest to make reference to such research.

As a practicing chiropractor, and a responsible human being, I have made every attempt to provide the highest level of quality care for my clientele. I know I speak for a great number of chiropractors when I state that we make every attempt to take a thorough case history, perform a careful physical examination, and apply appropriate treatment, which we think will help diagnose and appropriately treat

our patients. Also, it is important to note that over the past few years the cooperation among the chiropractic, osteopathic, podiatric, dental, and medical professions has increased dramatically because of patient demand and acknowledgment among physicians that we are all equally concerned about the welfare of our patients.

Robert Sherman, D.C.
Beaverton, Ore.

William Jarvis replies:

Dr. Coyle wrongly states that I maintain separate standards for evaluating different systems of health care. As a specialist in consumer health education, which is the academic area that evaluates controversial health products and services, I apply the inseparable principles of science and consumer-protection law as the standard for all health care. I take into account the description and evaluation of claims, and how these meet evidence of both safety and effectiveness for their intended purposes. I am trained in both the behavioral (Coyle says "social") and the biological sciences. Coyle's training as a physical chemist doesn't prepare him to judge chiropractic or biomedicine.

Chiropractor Sherman tells us that his own practices are altruistic, which I will accept on faith. I also realize that many sufferers of chronic pain and disability go to chiropractors and get relief. Chronic sufferers are known to shop around, and practitioners of every form of health care, proved or not, can provide testimonials. The problem is that the results they claim are selective. Even chiropractors have not reported the proportion of chronic sufferers they help, what conditions they may or may not be able to help, or the proportion that manipulative therapy may harm, and so forth.

Coyle and Sherman merely present retorts identical to those prepared by the chiropractic public-relations people, responding to chiropractic's critics. They should stop making excuses and start applying scientific standards to their guild.

Alternative therapies

In response to my article on alternative therapy (Fall 1987), Martin Reiser writes that "our paradigm needs to include belief-system effects in addition to double-blind studies" (Spring 1988). Tampering with the results of double-blind trials by making such allowances would simply invalidate them.

In matters of reasoning and of fact, we make no bones about disagreeing with other people in an attempt to reach the truth. Why treat beliefs as if they were sacred and beyond the possibility of error or change?

Jack E. Booker writes (Spring 1988) that he is unhappy about the cautionary tales from acupuncture that I included. But these warnings came, not directly from me, but from the British Medical Association's report, of which my article was a summary.

Booker assures us that acupuncture needles are safely sterile. But this is not the whole story. The BMA points out: "An aseptic technique of insertion is taught, but in practice, strict asepsis is not often observed. Some acupuncturists do not bother to scrub up or to disinfect the skin, though virtually all profess to use sterilized needles."

Booker claims that "since Goldberg first postulated receptor sites for opiates, there has been much proved to establish a scientific and rational basis for much of the action of acupuncture." This is simply not true. "Numerous controlled trials have shown that the claims for acupuncture have no scientific validity" (Petr Skrabanek, "Acupuncture and the Age of Unreason." *Lancet,* May 26, 1984: 1169-1171).

As for the now fashionable speculation on the role of opiates: "When cerebrospinal fluid beta-endorphin is measured in patients with acute or chronic pain, the levels are very low and do not correlate with the duration and severity of pain. If endorphins are to be impli-

cated in analgesia induced by acupuncture, placebo, hypnosis, nitrous oxide anesthesia, or in fakirs impervious to a bed of nails, the specific opiate antagonist, naloxone, should reverse the analgesia. Unfortunately, naloxone induces not only hyperalgesia, but also analgesia, although most often it has no effect at all" ("Endorphins Through the Eye of a Needle," *Lancet,* February 28, 1981: 480-481).

Lewis Jones
London, England

Government and quackery

The ghost of Lewis Carroll is, it seems, active in Fullerton, California, judging by Walter Clark's letter (Spring 1988). Only Humpty Dumpty (for whom words meant whatever he chose, "neither more nor less") would ask, in an opening sentence to a respected rationalist journal, "Is there nothing sacred for the SKEPTICAL INQUIRER?" For those of us resident outside the borders of Looking-glass Land (or is it, perhaps, Kafka country?), the answer to this question is presumably: "Apart from scientific method, nothing."

I am reluctant to express any opinion about a domestic U.S. issue, but these matters have global ramifications, and I feel obliged to observe that Clark's critique of Congressman Claude Pepper's article on quackery (Fall 1987) bears all the hallmarks of spurious special pleading. It becomes clear, as one reads on, that Pepper has committed the cardinal sin (for Clark) of failing to regard the "free marketplace" as somehow "sacred." Adding insult to sacrilege, Pepper had suggested that the state might intervene on behalf of the powerless, the aged, and the infirm, against mendacious claims by quacks. Clark feels this to be "a bigger flimflam than even chiropractic" and tantamount to advocating censorship. The infirm are advised to enter cheerfully into the competitive struggle for survival. . . . Well, the charge about censorship appears, by implication, to extend potentially to the entire CSICOP enterprise. Furthermore, this letter reeks mightily of social Darwinism, whose classic assumptions can, in my view, be perceived as yet another dangerous contemporary superstition.

Trevor Danson
Lancashire, England

I take issue with Walter Clark's letter on the government's response to health quackery even though some of his premises may be generally valid. Yes, in trying to stop one scam we may create another and, indeed, when we arrogate certain responsibilities for an individual, we may make him less able to handle responsibilities in general. Trite but true. Unfortunately, Clark applies these generalities to a complex issue of public policy—the government's role in health care—and his conclusion is a wrong-headed apologetic for what sounds like health-care libertarianism.

Why is it wrong-headed? First, health care is most definitely *not* a "marketplace activity." True marketplace activity must operate in a very specific kind of economic environment, a kind more common in economics textbooks than in modern societies. Such an environment must support enough producers so that if a few fail, the overall supply of what is being produced will not be affected, and it must contain consumers with perfect knowledge, i.e., consumers who judge immediately and without error the quality of their purchases, and whose buying decisions change instantly, regardless of lifetime habits, when they detect quality changes in those purchases. Our health-care institutions do not function in such an environment, nor can they be made to do so.

The "medical marketplace," however misnamed, is characterized by both a shortage of doctors and a shortage of facilities, and it's not hard to see why. Doctors must put in roughly ten years of intense, very costly training, after which they enter a profession that uses some of the most specialized and expensive equip-

ment that modern technology can supply. For these and other reasons, start-up and operating costs for a health-care facility are astronomical, and institutions that require astronomical sums of money will always become influential in whatever polity they inhabit. Any meaningful traces of "marketplace activity" disappear.

Clark might say that this is just the problem he's trying to point out, and again I would agree, but I strongly disagree with his solution. We cannot realistically restore an effective market dynamic to health care. We cannot do it unless we can get all our communities to build enough hospitals and clinics and train enough doctors so that the failure of a few of them wouldn't affect our health care. How large an investment would that be? I don't know for sure, but it would be more than the community's economy could ever support. Maybe the citizens of Kuwait could build five hospital beds per patient, but poorer economies must be more frugal.

Lacking an effective marketplace solution, we really have no choice but to regulate. I'm not in love with the idea; I'm just trying to be realistic. Clark wrongly compares health care to the electronics industry. I have a better comparison—airlines. Getting the government out of health care would improve health care no more than deregulation has improved air travel. In fact, the results would be a lot worse. A traveler at least knows immediately when his flight is delayed; a pregnant woman who was prescribed a thalidomide-like drug wouldn't know anything until it was too late, nor would she be particularly consoled by Clark's assurance that by switching doctors she was helping the efficiency of the marketplace.

Roger McKeown
Annandale, N.J.

Understanding hypnosis

Professor Spanos's interesting article, "Past-Life Hypnotic Regression: A Critical View" (*SI*, Winter 1987-88), is slightly marred by a somewhat misleading statement as to the status of contemporary scientific opinion about hypnosis, and I write to set the record a little straighter. In *Hypnosis and Hypnotherapy* (1986), David Rowley outlines no less than *seven* contemporary paradigms of hypnosis that have a respected place in the scientific community: Spanos's own paradigm is just *one* of them, yet he states it rather dogmatically as though it were the only one worthy of scientific regard.

Many important psychologists and others well known for their research work in experimental hypnosis would simply not agree with the factual accuracy of Spanos's statement that "nonhypnotic control subjects who have been encouraged to do their best respond just as well as hypnotic subjects to suggestions for pain reduction. . . ." This idea was promoted by T. X. Barber in 1969 and has subsequently led to much rigorous experimentation and analysis, and has finally been abandoned by most significant research scientists. With regard to pain control, leading researchers, such as Ronald Melzack and Patrick Wall, have more recently been convinced by the accumulated research data about hypnosis and have accepted that hypnosis is more than a placebo. They write: "The mechanisms of hypnosis are extremely complex and, not surprisingly, are the source of heated debate. . . . Whatever the mechanisms may be, it is clear that hypnotic suggestion can be usefully employed to help patients achieve control over some kinds of chronic pain. Not all patients are helped, and the pain is rarely totally abolished. But the effect is sufficiently impressive to indicate that it is a valuable form of therapy" (Melzack and Wall 1982). This is in contrast to the overskeptical view of hypnosis expressed by Melzack in 1974. Spanos's statement quoted above is just *one* interpretation of some laboratory work involving a trivial degree of pain that is largely irrelevant to the very serious degree of pain met with in clinical practice.

Proper skepticism about hypnosis has enabled us to make very real progress over the past 30 years in understanding

its mechanisms. Biased and inaccurate statements like that of Spanos do not lead to further research and enlightenment. They may lead to the baby being thrown out with the bathwater.

H. B. Gibson, Ph.D., Pres.
British Society of Experimental and Clinical Hypnosis
Cambridge, England

Nicholas Spanos responds:

Contrary to Gibson's implication, I did not suggest that my own point of view concerning hypnosis was the only one worthy of scientific regard. Instead, I pointed out that many traditional notions about the effects of hypnotic procedures are inaccurate and without empirical foundation. These include the ideas that hypnotic procedures (a) induce profound alterations in consciousness that greatly augment suggestibility, (b) allow subjects to transcend normal volitional capacities, and (c) cause subjects to lose volitional control over memory and motor functions. The interested reader can find ample empirical support for these contentions in a recent review article (Spanos 1986).

Gibson took particular issue with my statement that "nonhypnotic control subjects who have been encouraged to do their best respond just as well as hypnotic subjects to suggestions for pain reduction. . . ." According to Gibson, this position has been abandoned "by most significant research scientists." Unfortunately, Gibson never tells us who these scientists are or what evidence led them to abandon this position. Certainly the evidence does not *consist of controlled studies demonstrating that hypnotic suggestions are more effective than nonhypnotic suggestions at inducing reductions in reported pain. On the contrary, the controlled studies in this area consistently indicate no significant differences in degree of suggested analgesia in hypnotic and nonhypnotic subjects (Spanos 1986).*

Along these lines, it is worth noting that the quotation from Melzack and Wall given by Gibson does not *support his contention. Instead, that quote simply indicates that hypnotic subjects given analgesia suggestions report reductions in pain. I never denied that this was the case. Instead, I pointed out that motivated nonhypnotic subjects given analgesia suggestions also report pain reductions; reductions that are of the same magnitude as those shown by hypnotic subjects.*

Gibson implies that the failure to find differences between hypnotic and nonhypnotic subjects only occurs in laboratory studies "involving trivial degrees of pain." In laboratory studies pain is, of course, induced with stimuli like ice water that do not produce serious or permanent tissue damage. Nevertheless, such stimuli are typically rated by subjects as quite painful, and to dismiss this pain as "trivial" is gratuitous. (Let readers who doubt that laboratory pains are intense place their hand and forearm into circulating ice water at 0° for 60 seconds and see for themselves.)

Unfortunately, most clinical studies involving hypnotic procedures do not include nonhypnotic control groups. Contrary to Gibson, however, those that do typically find equivalent reductions in reports of clinical pain for hypnotic and nonhypnotic subjects given the same analgesia suggestions (e.g., Stam, McGrath and Brooke, 1984).

Gibson implies that hypnotic procedures are more effective than placebos at reducing reported pain, and there is, in fact, some empirical evidence to support this contention. Importantly, however, the available data (reviewed in Spanos, in press) further indicate that analgesia suggestions given without *hypnotic procedures are also more effective than placebos and as effective as hypnotic suggestions in this regard.*

Gibson is quite right in stating that biased and inaccurate statements do not lead to enlightenment. Therefore, it is unfortunate that his letter consists largely of just such statements.

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Myths of the Imagination

Two items in the Winter 1987-88 SKEPTICAL INQUIRER tripped my trigger: Stephen Jay Gould's "The Verdict on Creationism" and the continuing hoorah demonstrated by several readers on a subject I had thought laid to rest—spontaneous human combustion.

I commend to your readers the books written by Joseph Campbell under the collective title *The Masks of God.* In the four volumes he explores *Primitive Mythology, Occidental Mythology, Oriental Mythology,* and *Creative Mythology.* He makes two statements (among many pointing to the same conclusion) succinctly summing up the whole subject for me: "Man, apparently, cannot maintain himself in the universe without belief in some arrangement of the general inheritance of myth." And "Why should it be that whenever men have looked for something solid on which to found their lives, they have chosen not the facts in which the world abounds, but the myths of an immemorial imagination—preferring even to make life a hell for their neighbors, in the name of some violent god, to accepting gracefully the bounty the world affords?" How succinct can one get?

As to that old myth of spontaneous human combustion, or preternatural combustibility, I encountered an essay by Lester Adelson, who at the time was a member of the Academy of Forensic Sciences. The article, published in the *Journal of Criminal Law, Criminology, and Police Science* (1951-52), is available as 17 burn-copy (no pun) pages from Northwestern University Law School Library in Chicago for a modest fee. The last sentence of Adelson's article, which gives some idea of his beliefs, is: "Only the slow processes of intellectual attrition and gradual intellectual awakening placed Spontaneous Human Combustion and Preternatural Combustibility in their proper locus . . . monuments to bygone days when arm-chair speculation furnished the answers to 'burning questions.'"

I've enjoyed the SKEPTICAL INQUIRER for several years. Thank you for being continually thought-provoking.

William R. Appel
Hilmar, Calif.

Reduction to absurdity

Stephen Jay Gould's article "The Verdict on Creationism" (Winter 1988) prompts me to write on the matter of a key creationist argument used to avoid facing the geological record: the claim that God has, for whatever reason, intentionally left us with all the fossils, decayed radioisotopes and other evidence for the fact of evolution. Although we may point out that this claim is untestable and thereby outside of science, it remains a potent debater's argument in front of a lay audience. I would suggest the following treatment of it under such circumstances: Take it to its *reductio ad absurdum* limit.

If all the geological evidence is a "plant," why stop at that? Isn't it possible that the *historical* evidence is also a fraud? If God could create the rocks, bones, and isotopes, he could as easily have left us the monuments of Egypt, the ruins of Athens, and all the written records of them. Then why limit it to ancient history? Perhaps the world was really created only a century ago, with all the "past," its buildings, books, and documents, merely a part of God's wondrous creative binge. To accept the creationist argument is to hold that, in

fashioning our picture of the universe, we can accept only the evidence of our own memories, not that of the physical world around us. Might not the world have been created just one instant ago, each of us brought into being with all our "memories" imposed?

No one can rule out such a possibility, but no one, scientist or otherwise, could rationally expect to build a coherent, useful world-view out of such claims, not even a theological one. It is not simply that God wouldn't stoop to playing a joke on us with the fossil record. If the joke were real, there could be neither science nor religion.

Barry M. Jacobson
Dept. of Chemistry
Rice University
Houston, Texas

Ley lines, hollow moons

Two remarks in Charles J. Cazeau's review of *Mystic Places* (*SI*, Spring 1988) should be corrected in the interest of accuracy and fairness.

The first is a passing reference to the theory of ley lines, and its putative association with the British engineer Alexander Thom. Ley lines are the product of the fanciful imagination of Alfred Watkins, who in 1925 published his ideas in *The Old Straight Track*. Watkins claimed that most of the landmarks of ancient Britain could be seen to lie along one or more of a series of straight lines, though these stones, crosses, mounds, and wells were constructed over a span of a few thousand years and were, in general, not intervisible. His ideas have been regarded with proper skepticism by all but the usual small band of enthusiastic believers. Thom, on the other hand, has spent the bulk of his life carefully surveying Britain's megalithic monuments. His work, to his satisfaction and to that of many other sober observers, shows that many could have been used as astronomical observatories. Thom's statistical methods are still in question, but if the problem posed by these monuments is ever to be completely unraveled, it will be through patient, careful studies like those carried out by Thom and his family.

The second discusses "Soviet 'scientists' " who proposed "the moon" to be hollow. The reference is not clear, but the only claim I know of was made some 20 years ago by the highly respected astrophysicist I. S. Shklovskii of the Sternberg Astronomical Institute. In *Intelligent Life in the Universe* (coauthored by Carl Sagan), Shklovskii proposed that Mars's larger moon, Phobos, might be artificial. He did so because the best evidence available to him in that pre-Viking era suggested that Phobos displayed a secular acceleration, i.e., that its orbital velocity was slowly decreasing. That acceleration could not be accounted for by traditional celestial mechanics unless Phobos's specific gravity was much less than unity, as would be the case if it were artificial. Shklovskii himself admitted that "we have at best only a plausibility argument to support this contention" (p. 374). Of course the evidence from the Viking orbiters shows that both Martian moons are quite ordinary chunks of rock.

Surely our standards can be sufficiently broad to embrace those who, though operating within the bounds of ordinary science, might be proved wrong. After all, falsifiability helps define the discipline.

Robert J. Manning
Professor of Physics
and Humanities
Davidson College
Davidson, N.C.

Charles Cazeau replies:

Ley lines or other alignments have caught the attention of people, scientists and otherwise, for a long time. Some, such as Bruce Cathie of New Zealand, imagine a worldwide grid system of which alignments in Britain are only a part. Mystic Places *chose to focus on Thom's work, and I reported that as a reviewer should.*

My mention of the hollow moon theory was drawn from the pseudoscience literature, not from the works of Soviet scientist I. S. Shklovskii; nor was that gentleman's name mentioned or even thought of.

I certainly have no quarrel with scientists who may be proved wrong. I have had some dumb ideas myself. Even Aristotle thought the earth was hollow, to explain the cause of earthquakes. Given the state of knowledge at that time, Artistotle's proposal was reasonable.

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Arizona. Tucson Skeptical Society (TUSKS), Ken Morse, Chairman, 2509 N. Campbell Ave., Suite #16, Tucson, AZ 85719.

Phoenix Skeptics, Michael Stackpole, Chairman, P.O. Box 62792, Phoenix, AZ 85082-2792.

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Sacramento Skeptics Society, Terry Sandbek, 4095 Bridge St., Fair Oaks, CA 95628.

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Georgia. Georgia Skeptics, Keith Blanton, Convenor, 150 South Falcon Bluff, Alpharetta, GA 30201.

Hawaii. Hawaii Skeptics, Alicia Leonhard, Director, P.O. Box 1077, Haleiwa, HI 96712.

Illinois. Midwest Committee for Rational Inquiry, Michael Crowley, Chairman, P.O. Box 977, Oak Park, IL 60303.

Indiana. Indiana Skeptics, Robert Craig, Chairperson, 5401 Hedgerow Drive, Indianapolis, IN 46226.

Iowa. ISRAP, Co-chairman, Randy Brown, P.O. Box 792, Ames, IA 50010-0792.

Kentucky. Kentucky Assn. of Science Educators and Skeptics (KASES), Chairman, Prof. Robert A. Baker, Dept. of Psychology, Univ. of Kentucky, Lexington, KY 40506-0044.

Louisiana. Baton Rouge Proponents of Rational Inquiry and Scientific Methods (BR-PRISM), Henry Murry, Chairman, P.O. Box 15594, Baton Rouge, LA 70895.

Massachusetts and New England. Skeptical Inquirers of New England (SINE), David Smith, Chairman, Museum of Comparative Zoology, Harvard University, Cambridge, MA 02138.

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Ohio. South Shore Skeptics. Page Stephens, Box 5083, Cleveland, OH 44101

Pennsylvania. Paranormal Investigating Committee of Pittsburgh (PICP), Richard Busch, Chairman, 5841 Morrowfield Ave., #302, Pittsburgh, PA 15217.

Delaware Valley Skeptics, Brian Siano, Secretary, Apt. 1-F, 4406 Walnut St., Philadelphia, PA 19104.

South Carolina. South Carolina Committee to Investigate Paranormal Claims, John Safko, 3010 Amherst Ave., Columbia, SC 29205.

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Local, Regional, and National Groups (Cont'd)

Texas. Houston Association for Scientific Thinking (HAST), Steven Schafersman and Darrell Kachilla, P.O. Box 541314, Houston, TX 77254.

North Texas Skeptics, Eddie Vela, Secretary and Treasurer, P.O. Box 815845, Dallas, TX 75381-5845.

West Texas Society to Advance Rational Thought, Co-Chairmen: George Robertson, 516 N Loop 250 W #801, Midland TX. 79705; Don Naylor, 404 N. Washington, Odessa, TX 79761.

Washington. Northwest Skeptics, Philip Haldeman, Chairman, T.L.P.O. Box 8234, Kirkland, WA 98034.

West Virginia. Committee for Research, Education, and Science Over Nonsense (REASON), Dr. Donald Chesik, Chairperson, Dept. of Psychology, Marshall University, Huntington, WV 25701.

AUSTRALIA. National: Australian Skeptics, Barry Williams, Chairman, P.O. Box 575, Manly, N.S.W. 2095.

Regional: Australian Capital Territory, P.O. Box 555, Civic Square, 2608.

Queensland, 18 Noreen Street, Chapel Hill, Queensland, 4069.

South Australia, P.O. Box 91, Magill, S.A., 5072.

Victoria, P.O. Box 1555P, Melbourne, Vic., 3001.

West Australia, 25 Headingly Road, Kalamunda, W.A., 6076.

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CANADA. National: James E. Alcock, Chairman, Glendon College, York Univ., 2275 Bayview Avenue, Toronto, Ontario.

Regional: British Columbia Skeptics, Barry Beyerstein, Chairman, Box 86103, Main PO, North Vancouver, BC, V7L 4J5.

Ontario Skeptics, Henry Gordon, Chairman, P.O. Box 505, Station Z, Toronto, Ontario M5N 2Z6.

Quebec Skeptics: Raymond Charlebois, Secretary, C.P. 96, Ste-Elisabeth, Quebec, J0K 2J0.

FINLAND. Society for the Scientific Investigation of Claims of the Paranormal, Prof. Seppo Kivinen, Chairman, Dept. of Philosophy, Univ. of Helsinki, Unioninkatu 40 B, 00170 Helsinki 17.

FRANCE. Comité Français pour l'Etude des Phénomènes Paranormaux, Dr. Claude Benski, Secretary-General, Merlin Gerin, RGE/A2 38050 Grenoble Cedex.

INDIA. National: B. Premanand, Chairman, 10, Chettipalayam Rd., Podanur 641-023 Coimbatore Tamil nadu.

Regional: Bangalore, Dr. H. Narasimhaiah, President, The Bangalore Science Forum, The National College Buildings, Basavanaguidi, Bangalore-560-004.

(A number of other organizations work with the National group. Contact B. Premanand for details.)

IRELAND. Irish Skeptics, Dr. Peter O'Hara, Convenor, P.O. Box 20, Blackrock, Dublin.

MEXICO. Mario Mendez-Acosta, Apartado Postal 19-546, Mexico 03900, D.F.

NETHERLANDS. Stichting Skepsis, Bert Van Gelder, Secretary, Post bus 2657, 3500 GR, Utrecht.

NEW ZEALAND. New Zealand Skeptics, Chairman, Dr. Denis Dutton, Dept. of Fine Arts, University of Canterbury, Christchurch.

NORWAY. K. Stenodegard, NIVFO, P.O. Box 2119, N-7001, Trondheim.

SOUTH AFRICA. Assn. for the Rational Investigation of the Paranormal (ARIP), Marian Laserson, Secretary, 4 Wales St., Sandringham 2192.

SPAIN. Alternativa Racional a las Pseudosciencias (ARP), Luis Alfonso Gámez Domínguez, Secretary, c/o el Almirante A. Gaztañeta, 1-5º D. 48012 Bilbao.

SWEDEN. Vetenskap och folkbildning (Science and People's Education), Sven Ove Hansson, Secretary, Sulite Imavägen 15, S-161 33 Bromma

SWITZERLAND. Conradin M. Beeli, Convenor, Mühlemattstr. 20, CH-8903 Birmensdorf.

UNITED KINGDOM. British Committee, Michael J. Hutchinson, Secretary, 10 Crescent View, Loughton, Essex 1G10 4PZ.

British and Irish Skeptic Magazine, Editors, Toby Howard and Steve Donnelly, 49 Whitegate Park, Flixton, Manchester M31 3LN.

Regional: Manchester Skeptics, Toby Howard, 49 Whitegate Park, Flixton, Manchester M31 3LN.

WEST GERMANY. Society for the Scientific Investigation of Para-Science (GWUP), Amardeo Sarma, Convenor, Postfach 1222, D-6101 Rossdorf.

The Committee for the Scientific Investigation of Claims of the Paranormal

Paul Kurtz, Chairman

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Subcommittees

Astrology Subcommittee: Chairman, I. W. Kelly, Dept. of Educational Psychology, University of Saskatchewan, Saskatoon, Saskatchewan S7N 0W0, Canada.

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Legal and Consumer Protection Subcommittee: Chairman, Mark Plummer, CSICOP, Box 229, Buffalo, NY 14215-0229.

Paranormal Health Claims Subcommittee: Co-chairmen, William Jarvis, Professor of Health Education, Dept. of Preventive Medicine, Loma Linda University, Loma Linda, CA 93350, and Stephen Barrett, M.D., P.O. Box 1747, Allentown, PA 18105.

Parapsychology Subcommittee: Chairman, Ray Hyman, Psychology Dept., Univ. of Oregon, Eugene, OR 97402.

UFO Subcommittee: Chairman, Philip J. Klass, 404 "N" Street S.W., Washington, D.C. 20024.

The Committee for the Scientific Investigation of Claims of the Paranormal

The Committee for the Scientific Investigation of Claims of the Paranormal attempts to encourage the critical investigation of paranormal and fringe-science claims from a responsible, scientific point of view and to disseminate factual information about the results of such inquiries to the scientific community and the public. To carry out these objectives the Committee:

- Maintains a network of people interested in critically examining claims of the paranormal.
- Prepares bibliographies of published materials that carefully examine such claims.
- Encourages and commissions research by objective and impartial inquiry in areas where it is needed.
- Convenes conferences and meetings.
- Publishes articles, monographs, and books that examine claims of the paranormal.
- Does not reject claims on a priori grounds, antecedent to inquiry, but rather examines them objectively and carefully.

The Committee is a nonprofit scientific and educational organization. THE SKEPTICAL INQUIRER is its official journal.